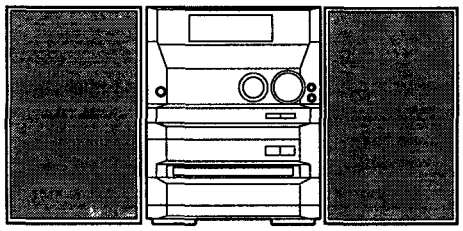
aiwa

aiwa SERVICE

XR-H66MD

SERVICE MANUAL



MD/CD STEREO SYSTEM

- BASIC CD MECHANISM : 4ZG–1 Z3MD
- BASIC MD MECHANISM : 7ZG–5 U
- TYPE: U

SYSTEM	CD CASSEIVER	SPEAKER	REMOTE CONTROLLER
XR–H66MD	CX–NH66MD	SX–NH66	RC–7AS15

- If requiring information about the CD mechanism, see Service Manual of 4ZG-1. (S/M Code No. 09-978-221-20T)

S/M Code No. 09–983–251–8FE

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SPECIFICATIONS

<FM Tuner section>

Tuning range	87.5 MHz to 108 MHz
Usable sensitivity (IHF)	13.2 dBf
Antenna terminals	75 ohms (unbalanced)

<AM Tuner section>

Tuning range	530 kHz to 1710 kHz (10 kHz step) 531 kHz to 1602 kHz (9 kHz step)
Usable sensitivity	350 μV/m
Antenna	Loop antenna

<Amplifier section>

Power output *	60 watts per channel, Min. RMS at 6 ohms, from 50 Hz to 20 kHz, with no more than 1 % Total Harmonic Distortion
	* without connecting to the SURROUND SPEAKERS
Total harmonic distortion	0.1 % (20 W, 1 kHz, 6 ohms, DIN AUDIO)
Inputs	AUX: 400 mV TAPE PLAY: 400 mV MIC: 1.8 mV/10 kohms DIGITAL IN
Outputs	SUPER WOOFER: 1.9 V SPEAKERS: accept speakers of 6 ohms or more SURROUND SPEAKERS: accept speakers of 16 ohms or more PHONES (stereo jack): accepts headphones of 32 ohms or more CD DIGITAL OUT TAPE REC OUT

<Compact disc player section>

Laser	Semiconductor laser (λ =780 nm)
D-A converter	1 bit dual
Signal-to-noise ratio	85 dB (1 kHz, 0 dB)
Harmonic distortion	0.05 % (1 kHz, 0 dB)
Wow and flutter	Unmeasurable

<MD recorder section>

Scanning method	Non-contact optical scanner (Semiconductor laser application)
Recording system	Magnetic polarity modulation overwrite system
Rotation speed	Approx. 400 – 900 rpm (CLV)
Sampling frequency	44.1 kHz
No. of channels	Stereo: 2 channels Monaural: 1 channel
A-D, D-A converter	1-bit
Frequency	20 – 20000 Hz +0.5 – –1.5 dB
Wow and flutter	Unmeasurable

<General>

Power requirements	120 V AC, 60 Hz
Power consumption	100 W
Dimensions of main unit (W x H x D)	260 x 338 x 344 mm ($10^1/_4$ x $13^3/_8$ x $13^5/_8$ in.)
Weight of main unit	9.5 kg (20 lb 15 oz.)

<Speaker system SX–NH66>

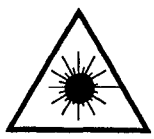
Cabinet type	3 way, bass reflex (magnetic shielded type)
Speakers	Woofer: 160 mm ($6^3/_8$ in.) cone type Tweeter: 60 mm ($2^3/_8$ in.) cone type Super tweeter: 20 mm ($^{13}/_{16}$ in.) ceramic type
Impedance	6 ohms
Output sound pressure level	87 dB/W/m
Dimensions (W x H x D)	236 x 388 x 260 mm ($9^3/_8$ x $13^3/_8$ x $10^1/_4$ in.)
Weight	3.4 kg (7 lb 8 oz.)

- Design and specifications are subject to change without notice.
- The word "BBE" and the "BBE symbol" are trademarks of BBE Sound, Inc.
  Under license from BBE Sound, Inc.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!
WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!
Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

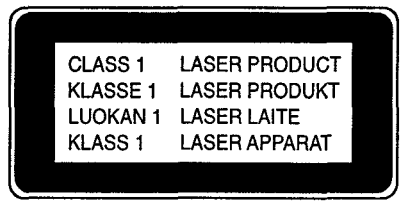
VARNING!
Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!
Usynlig laserstråling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

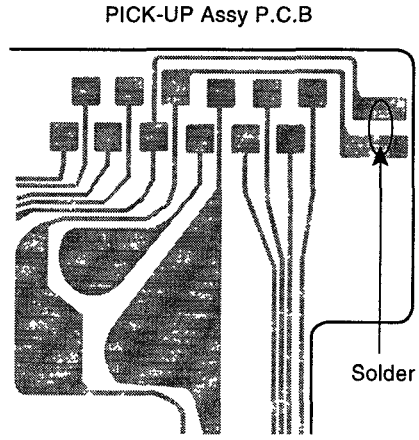


Precaution to replace Optical block

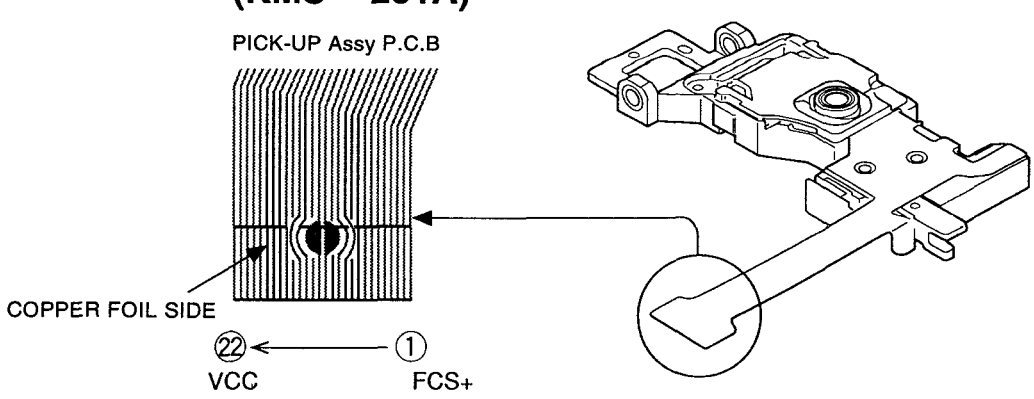
Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in right figure.

(KSS – 213B)



(KMS – 251A)



NOTE ON BEFORE STARTING REPAIR

1. Forced discharge of electrolytic capacitor of power supply block

When repair is going to be attempted in the set that uses relay circuit in the power supply block, electric potential is kept charged across the electrolytic capacitors (C101, 102) even though AC power cord is removed. If repair is attempted in this condition, the secondary defect can occur.
In order to prevent the secondary trouble, perform the following measures before starting repair work.

Discharge procedure

① Remove the AC power cord.
② Connect a discharging resistor at an end of lead wire that has clips at both ends. Connector the other end of the lead wire to metal chassis.
③ Contact the other end of the discharging resistor to the positive (+) side (+VH) of C101. (For two seconds)
④ Contact the same end of the discharging resistor as step ③ to the negative (-) side (-VH) of C102 in the same way. (For two seconds)
⑤ Check that voltage across C101 and C102 has decreased 1 V or less using a multimeter or an oscilloscope.

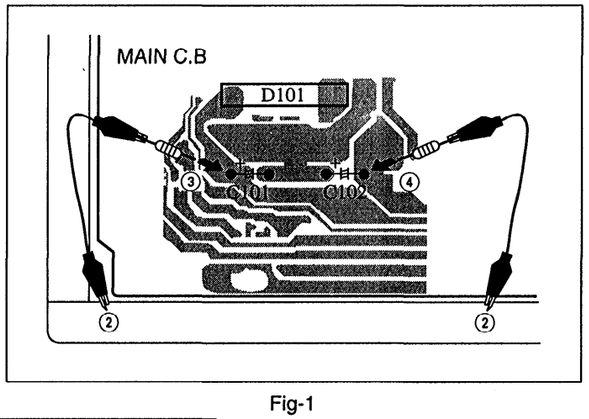


Fig-1

Select a discharging resistor referring to the following table.

Charging voltage (V) (C101, 102)	Discharging resistor (Ω)	Rated power (W)	Parts number
25-48	100	3	87-A00-247-090
49-140	220	5	87-A00-232-090

Note: The reference numbers (C101, C102) of the electrolytic capacitors can change depending on the models. Be sure to check the reference numbers of the charging capacitor on schematic diagram before starting the discharging work.

2. Check items before exchanging the MICROCOMPUTER

Be sure to check the following items before exchanging the MICROCOMPUTER. Exchange the MICROCOMPUTER after confirming that the MICROCOMPUTER is surely defective.

2-1. Regarding the HOLD terminal of the MICROCOMPUTER

When the HOLD terminal (INPUT) of the MICROCOMPUTER is "H", the MICROCOMPUTER is judged to be operating correctly. When this terminal is "L", the main power cannot be turned on. Therefore, be sure to check the terminal voltage of the HOLD terminal before exchange.
When the MICROCOMPUTER is not defective, the HOLD terminal can also go "L" when the POWER AMPLIFIER has any abnormalities that triggers the abnormality detection circuit on the MAIN C. B. that sets the HOLD terminal to "L".

- **Good or no good judgment of the MICROCOMPUTER**

① Turn on the AC main power.
② Confirm that the main power is turned on and the HOLD terminal of the MICROCOMPUTER keeps the "H" level or not.
③ When the HOLD terminal is "L" level, the abnormality detection circuit is judged to be working correctly and the MICROCOMPUTER is judged to be good.

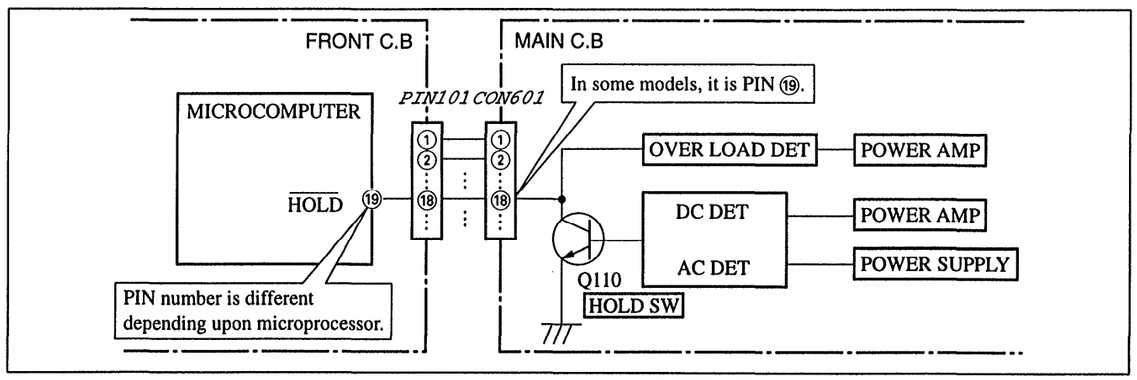


Fig-2-1

In such a case, check also if the POWER AMPLIFIER circuit or power supply circuit has any abnormalities or not.

2-2. Regarding reset

There are cases that the machine does not work correctly because the MICROCOMPUTER is not reset even though the AC power cord is re-inserted, or the software reset (pressing the STOP key + POWER key) is performed.
When the above described phenomenon occurs, it can leads to wrong judgment as if the MICROCOMPUTER is defective and to exchange the MICROCOMPUTER. In such a case, perform the forced-reset by the following procedure and check good or no good of the MICROCOMPUTER.
① Remove the AC power cord.

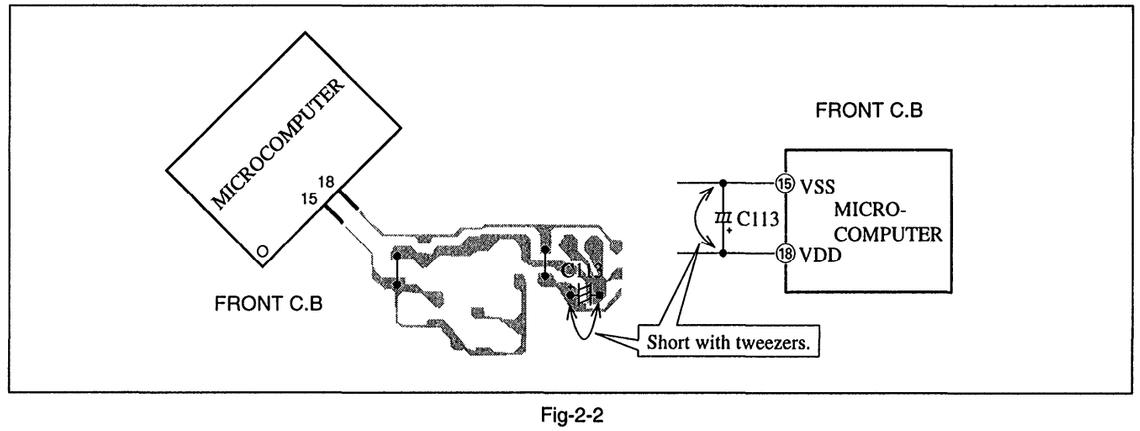


Fig-2-2

② Short the both ends of the electrolytic capacitor C113 that is connected to VDD of the MICROCOMPUTER with tweezers.
③ Connect the AC power cord again. If the MICROCOMPUTER returns to the normal operation, the MICROCOMPUTER is good.

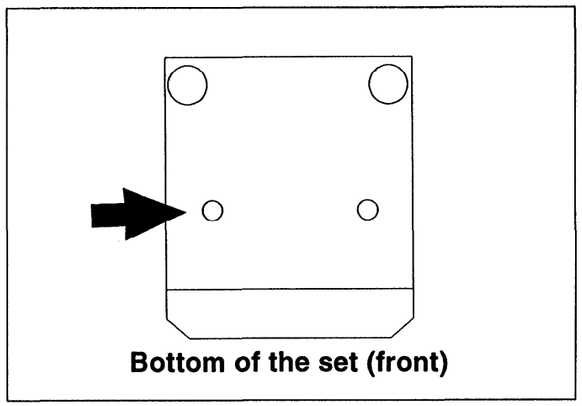
Note: The reference number or MICROCOMPUTER pin number of transistor (Q110) and electrolytic capacitor (C113) can change depending on the models. Be sure to check the reference numbers on schematic diagram before starting the discharging work.

2-3. Confirmation of soldering state of MICROCOMPUTER

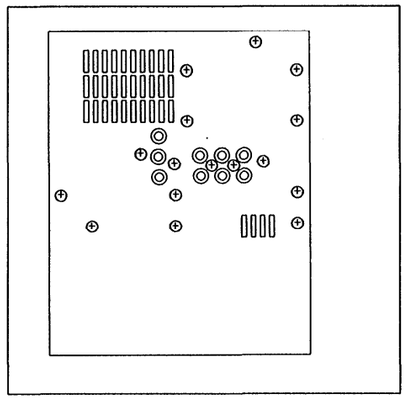
Check the soldering state of the MICROCOMPUTER in addition to the above described procedures. Be sure to exchange the MICROCOMPUTER after surely confirming that the trouble is not caused by poor soldering but the MICROCOMPUTER itself.

DISASSEMBLY INSTRUCTIONS

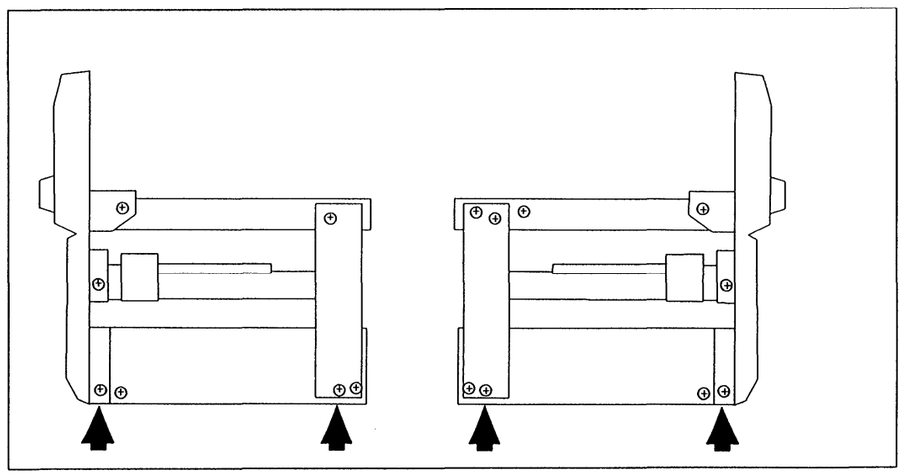
1. MD block removal
   1) Remove the CABI, STEEL.
   2) Remove the PANEL, TRAY MD.
      Note: If EJECT function does not work with the OPEN / CLOSE button due to a mechanical failure, insert the minus screwdriver to the hole on the bottom of the set, and turn it to clockwise direction fully. Pull and eject the tray manually.



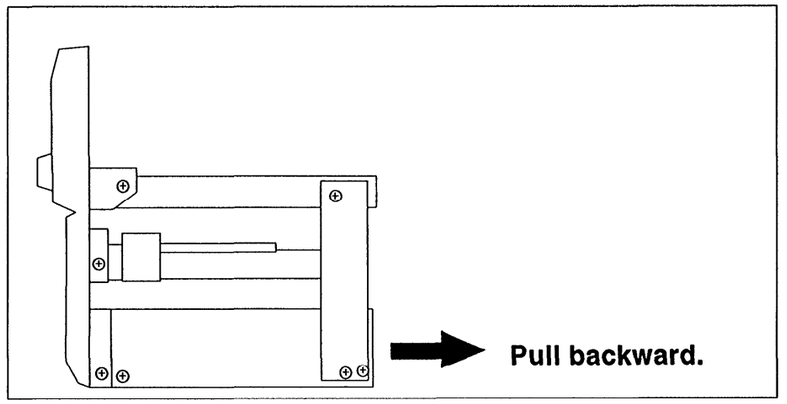
3) Remove the 16 screws and PANEL, REAR.



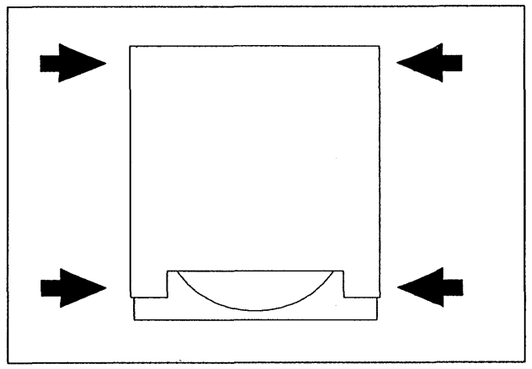
4) Disconnect the FFC 22P cable and FFC 13P cable from the MD MAIN C. B, and CN 704 from the MD DIGITAL C. B.
5) Remove the 4 screws on the side panel.



6) Pull the MD block to backward.

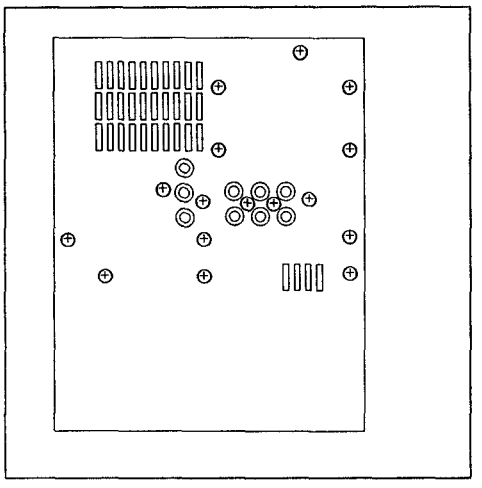


7) Remove the 4 screws on the side panel of the MD block.

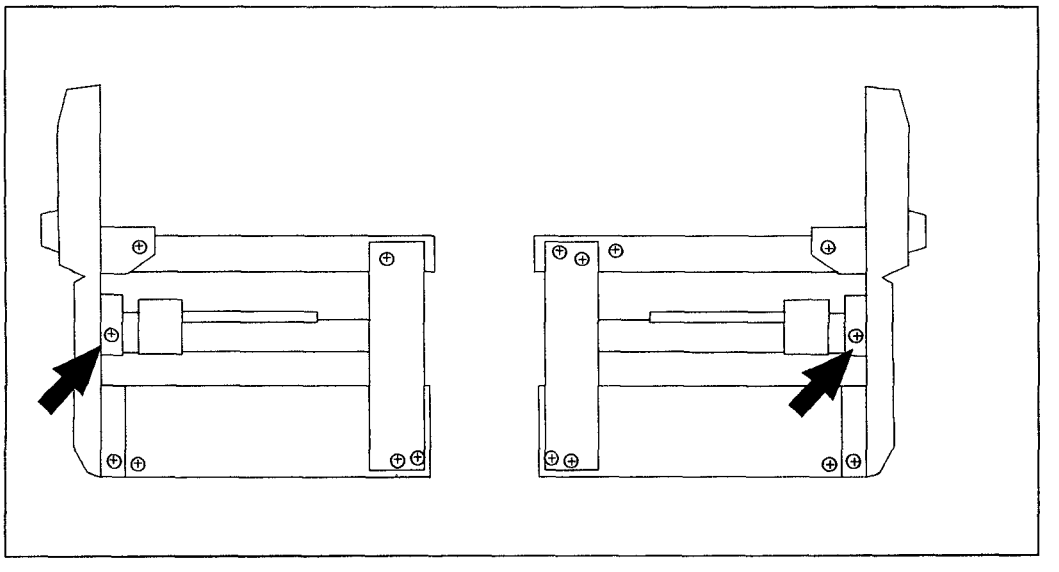


8) For an operational check of MD block, connect FFC 22P and FFC 13P directly to MD MAIN C. B without putting on chassis.

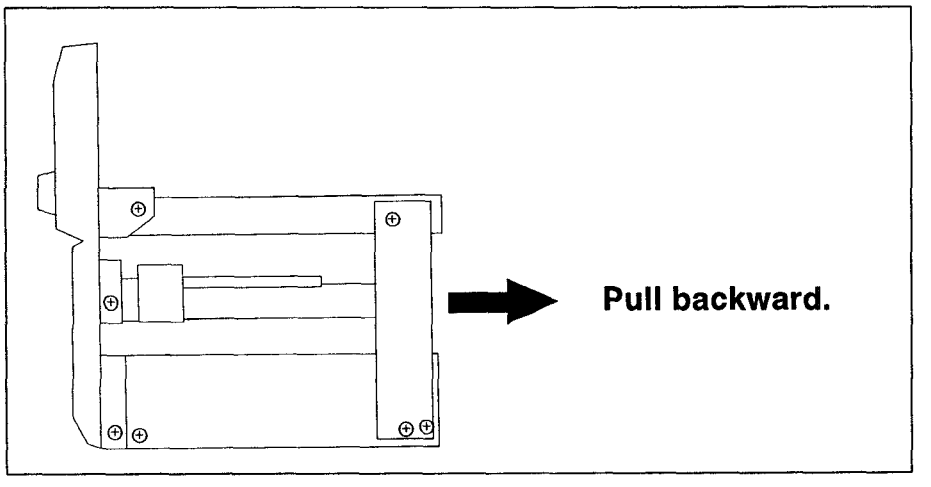
2. CD block removal
   1) Remove the CABI, STEEL.
   2) Remove the PANEL, TRAY CD.
   3) Remove the 16 screws and PANEL, REAR.



   4) Disconnect FFC 13P and FFC 6P cables from the CD block, to MD MAIN C. B.
   5) Remove the 2 screws on the side panel.



   6) Pull the CD block to backward.



ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-A20-707-010		C-IC,CXA2523AR
	87-NB5-601-110		C-IC,LC866560W-5H42
	87-A20-593-010		IC,SPS-442-1-A
	87-A20-708-010		C-IC,CXD2652AR
	87-017-915-080		IC,BU4094BCF
	87-A20-709-040		C-IC,BD7910FV
	87-070-289-040		IC,BU2092F
	87-ZG5-621-010		C-IC,CXP81952-7NB5
	87-017-920-040		IC,HM51W4400BS/BLS78
	87-A20-755-080		C-IC,AK93C45AF
	87-A20-710-040		C-IC,S-8110AMP
	87-A20-083-010		IC,BA3835S
	87-A20-711-040		C-IC,BA5970FP
	87-A20-712-040		C-IC,BA6417F
	87-A20-450-040		C-IC,BH3864F
	87-A20-056-010		IC,BA3880S
	87-001-982-010		IC,TA7291S
	87-A20-698-080		C-IC,AK4512VF
	87-A20-613-040		C-IC,BU9262AFS
	86-NFZ-676-080		C-IC,NJM4558MD
	87-A20-797-040		C-IC,NJU7221U30
	87-A20-456-040		C-IC,BH3810FS
	87-A20-798-040		C-IC,NJU7221U35
	87-017-888-080		IC,NJM4558MD
	87-A20-714-040		C-IC,NJM2370U33
	87-A20-602-040		C-IC,M5291FP
	87-002-528-080		IC,TC7W04F
	86-NFZ-655-010		IC,LC72131D(Z)
	87-A20-438-010		IC,LA1837
	87-A20-971-040		C-IC,SN74LV14APW
	87-A20-870-010		IC,GP1F37R
TRANSISTOR			
	87-026-263-080		C-TR,RN1410
	87-026-423-080		C-TR,RN2305
	89-213-750-010		TR,2SB1375(25W)
	87-A30-076-080		C-TR,2SC3052F
	89-115-884-080		CHIP TRANSISTOR,2SA1588Y
	87-A30-075-080		C-TR,2SA1235F
	89-341-164-080		CHIP TRANSISTOR,2SC4116Y
	87-026-610-080		TR,KTC3198GR
	87-A30-196-080		TR,2SC4115SRS
	87-A30-071-080		C-TR,RT1N144C
	87-A30-072-080		C-TR,RT1P144C
	87-026-609-080		TR,KTA1266GR
	87-A30-086-070		C-TR,CSD1306E
	87-A30-106-070		C-TR,CMBT5551
	87-A30-111-080		TR,C2N5401
	87-A30-137-010		TR,2SD2494
	87-A30-138-010		TR,2SB1625
	87-A30-162-010		FET,2SK2937
	87-A30-073-080		C-TR,RT1N141C
	87-A30-087-080		C-FET,2SK2158
	89-327-143-080		TR,2SC2714(0.1W)
	87-026-412-080		C-TR,RN1305
	87-A30-117-010		TR,2SA1357
	87-A30-185-010		TR,2SD1381FQR
	87-A30-074-080		C-TR,RT1P141C
	89-109-521-080		TR,2SA952(0.6W)
DIODE			
	87-001-166-080		DIODE,1SS301
	87-017-447-010		DIODE,GBU4DL
	87-A40-270-080		C-DIODE,MC2838
	87-A40-291-080		DIODE,1N4148M(CPT)
	87-A40-269-080		C-DIODE,MC2836
	87-A40-246-080		DIODE,IN4148 T-72
	87-070-274-080		DIODE,1N4003 SEM
	87-017-932-080		ZENER,MTJ6.2B
	87-A40-341-080		ZENER,MTZJ36A
	87-070-334-080		ZENER,MTZJ10B
	87-A40-412-040		C-DIODE,SB05-05CP
	87-070-136-080		ZENER,MTZJ5.1B
	87-A40-184-090		DIODE,RF34
	87-017-931-080		ZENER,MTZJ5.6B
	87-A40-180-040		C-DIODE,SB07-015C
	87-A40-003-080		ZENER,MTZJ4.3A
	87-A40-313-080		C-DIODE,MC2840
	87-A40-234-080		ZENER,MTZJ5.6A
	87-020-583-080		CHIP ZENER,02CZ5.1Y
MAIN C.B			
C101	87-016-043-090		CAP,E 3300-50 VR
C102	87-016-043-090		CAP,E 3300-50 VR
C103	87-010-928-090		CAP,E 4700-25 SMG
C104	87-010-928-090		CAP,E 4700-25 SMG
C105	87-012-368-080		C-CAP,S 0.1-50 F
C106	87-012-368-080		C-CAP,S 0.1-50 F
C107	87-012-368-080		C-CAP,S 0.1-50 F
C108	87-012-368-080		C-CAP,S 0.1-50 F
C109	87-010-196-080		CHIP CAPACITOR,0.1-25
C110	87-010-196-080		CHIP CAPACITOR,0.1-25
C111	87-010-196-080		CHIP CAPACITOR,0.1-25
C112	87-010-196-080		CHIP CAPACITOR,0.1-25
C113	87-010-407-080		CAP,ELECT 33-50V
C116	87-010-407-080		CAP,ELECT 33-50V
C117	87-016-285-080		CAP,E 47-100SME
C118	87-010-263-080		CAP,ELECT 100-10V
C119	87-010-260-080		CAP,ELECT 47-25V
C120	87-010-403-080		CAP,ELECT 3.3-50V
C121	87-012-140-080		CAP,470P
C122	87-010-263-080		CAP,ELECT 100-10V
C123	87-010-384-080		CAP,ELECT 100-25V
C124	87-010-112-080		CAP,ELECT 100-16V
C125	87-010-235-080		CAP,E 470-16 SME
C201	87-010-400-080		CAP,ELECT 0.47-50V
C202	87-010-400-080		CAP,ELECT 0.47-50V
C205	87-010-180-080		C-CER,1500P
C206	87-010-180-080		C-CER,1500P
C207	87-010-404-080		CAP,ELECT 4.7-50V
C208	87-010-404-080		CAP,ELECT 4.7-50V
C209	87-010-404-080		CAP,ELECT 4.7-50V
C210	87-010-404-080		CAP,ELECT 4.7-50V
C211	87-010-186-080		CAP,CHIP 4700P
C212	87-010-186-080		CAP,CHIP 4700P
C213	87-010-260-080		CAP,ELECT 47-25V
C214	87-010-260-080		CAP,ELECT 47-25V
C215	87-010-196-080		CHIP CAPACITOR,0.1-25
C219	87-010-196-080		CHIP CAPACITOR,0.1-25
C220	87-010-196-080		CHIP CAPACITOR,0.1-25
C221	87-010-196-080		CHIP CAPACITOR,0.1-25
C222	87-010-196-080		CHIP CAPACITOR,0.1-25
C223	87-010-194-080		CAP,CHIP 0.047
C225	87-A10-516-080		C-CAP,S 100P-200 J CH
C226	87-A10-516-080		C-CAP,S 100P-200 J CH
C229	87-012-358-080		C-CAP,S 0.47-10 F Z
C230	87-012-358-080		C-CAP,S 0.47-10 F Z
C242	87-010-408-080		CAP,ELECT 47-50V
C243	87-010-197-080		CAP,CHIP 0.01 DM
C244	87-010-408-080		CAP,ELECT 47-50V
C401	87-010-187-080		CAP CHIP,S 5600P
C402	87-010-187-080		CAP CHIP,S 5600P
C403	87-010-405-080		CAP,ELECT 10-50V
C404	87-010-405-080		CAP,ELECT 10-50V
C405	87-010-260-080		CAP,ELECT 47-25V

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C406	87-010-101-080		CAP,ELECT 220-16
C407	87-010-188-080		CAP CHIP,6800P
C408	87-010-188-080		CAP CHIP,6800P
C409	87-012-140-080		CAP,470P
C410	87-012-140-080		CAP,470P
C411	87-010-197-080		CAP,CHIP 0.01 DM
C412	87-010-197-080		CAP,CHIP 0.01 DM
C413	87-010-195-080		C-CAP,S 0.068-25 F
C414	87-010-195-080		C-CAP,S 0.068-25 F
C415	87-010-404-080		CAP,ELECT 4.7-50V
C416	87-010-404-080		CAP,ELECT 4.7-50V
C417	87-010-404-080		CAP,ELECT 4.7-50V
C418	87-010-404-080		CAP,ELECT 4.7-50V
C421	87-010-402-080		CAP,ELECT 2.2-50V
C422	87-010-402-080		CAP,ELECT 2.2-50V
C516	87-010-196-080		CHIP CAPACITOR,0.1-25
C611	87-016-081-080		C-CAP,S 0.1-16 RK
C613	87-010-404-080		CAP,ELECT 4.7-50V
C614	87-010-404-080		CAP,ELECT 4.7-50V
C615	87-010-183-080		C-CAP,S 2700P-50 B
C619	87-010-263-080		CAP,ELECT 100-10V
C620	87-010-196-080		CHIP CAPACITOR,0.1-25
C621	87-010-263-080		CAP,ELECT 100-10V
C622	87-010-196-080		CHIP CAPACITOR,0.1-25
C623	87-010-194-080		CAP,CHIP 0.047
C629	87-010-196-080		CHIP CAPACITOR,0.1-25
C639	87-010-322-080		C-CAP,S 100P-50 CH
C640	87-010-322-080		C-CAP,S 100P-50 CH
C641	87-010-322-080		C-CAP,S 100P-50 CH
C642	87-010-322-080		C-CAP,S 100P-50 CH
C646	87-010-322-080		C-CAP,S 100P-50 CH
C647	87-010-322-080		C-CAP,S 100P-50 CH
C651	87-010-322-080		C-CAP,S 100P-50 CH
C652	87-010-322-080		C-CAP,S 100P-50 CH
C663	87-010-178-080		CHIP CAP,1000P
C692	87-010-197-080		CAP,CHIP 0.01 DM
C696	87-010-197-080		CAP,CHIP 0.01 DM
C697	87-010-197-080		CAP,CHIP 0.01 DM
C701	87-010-381-080		CAP,ELECT 330-16V
C702	87-010-404-080		CAP,ELECT 4.7-50V
C703	87-010-197-080		CAP,CHIP 0.01 DM
C704	87-010-197-080		CAP,CHIP 0.01 DM
C711	87-010-263-080		CAP,ELECT 100-10V
C712	87-010-196-080		CHIP CAPACITOR,0.1-25
C713	87-010-197-080		CAP,CHIP 0.01 DM
C714	87-010-197-080		CAP,CHIP 0.01 DM
C721	87-010-312-080		C-CAP,S 15P-50 CH
C722	87-010-312-080		C-CAP,S 15P-50 CH
C723	87-010-178-080		CHIP CAP,1000P
C725	87-010-178-080		CHIP CAP,1000P
C727	87-010-196-080		CHIP CAPACITOR,0.1-25
C728	87-010-248-080		CAP,ELECT 220-10V
C755	87-010-197-080		CAP,CHIP 0.01 DM
C756	87-010-197-080		CAP,CHIP 0.01 DM
C757	87-010-318-080		C-CAP,S 47P-50 CH
C758	87-010-149-080		C-CAP,S 5P-50 CH
C761	87-010-196-080		CHIP CAPACITOR,0.1-25
C762	87-010-197-080		CAP,CHIP 0.01 DM
C763	87-010-194-080		CAP,CHIP 0.047
C765	87-010-197-080		CAP,CHIP 0.01 DM
C766	87-010-197-080		CAP,CHIP 0.01 DM
C767	87-010-405-080		CAP,ELECT 10-50V
C768	87-010-197-080		CAP,CHIP 0.01 DM
C769	87-010-408-080		CAP,ELECT 47-50V
C770	87-015-821-080		C-CAP,0.047
C771	87-010-407-080		CAP,ELECT 33-50V
C772	87-010-194-080		CAP,CHIP 0.047
C773	87-010-196-080		CHIP CAPACITOR,0.1-25
C774	87-010-263-080		CAP,ELECT 100-10V
C775	87-010-404-080		CAP,ELECT 4.7-50V
C776	87-010-197-080		CAP,CHIP 0.01 DM
C777	87-010-400-080		CAP,ELECT 0.47-50V
C778	87-010-401-080		CAP,ELECT 1-50V
C779	87-010-401-080		CAP,ELECT 1-50V
C780	87-010-196-080		CHIP CAPACITOR,0.1-25
C781	87-010-405-080		CAP,ELECT 10-50V
C782	87-010-405-080		CAP,ELECT 10-50V
C783	87-015-819-080		CAPACITOR,0.01
C784	87-015-819-080		CAPACITOR,0.01
C785	87-010-400-080		CAP,ELECT 0.47-50V
C786	87-010-400-080		CAP,ELECT 0.47-50V
C787	87-010-184-080		CHIP CAPACITOR,3300P(K)
C788	87-010-184-080		CHIP CAPACITOR,3300P(K)
C789	87-010-179-080		CAP,CHIP S B1200P
C790	87-010-179-080		CAP,CHIP S B1200P
C791	87-010-405-080		CAP,ELECT 10-50V
C793	87-010-178-080		CHIP CAP,1000P
C794	87-010-406-080		CAP,ELECT 22-50
C795	87-010-596-080		CAP,S 0.047-16
C796	87-010-403-080		CAP,ELECT 3.3-50V
C797	87-010-182-080		C-CAP,S 2200P-50 B
C798	87-010-182-080		C-CAP,S 2200P-50 B
C799	87-010-194-080		CAP,CHIP 0.047
C812	87-010-197-080		CAP,CHIP 0.01 DM
C813	87-010-197-080		CAP,CHIP 0.01 DM
C814	87-010-197-080		CAP,CHIP 0.01 DM
C815	87-010-197-080		CAP,CHIP 0.01 DM
C816	87-010-197-080		CAP,CHIP 0.01 DM
C819	87-010-197-080		CAP,CHIP 0.01 DM
C820	87-010-408-080		CAP,ELECT 47-50V
C821	87-010-197-080		CAP,CHIP 0.01 DM
C822	87-010-197-080		CAP,CHIP 0.01 DM
C823	87-010-197-080		CAP,CHIP 0.01 DM
C828	87-010-196-080		CHIP CAPACITOR,0.1-25
C829	87-010-196-080		CHIP CAPACITOR,0.1-25
C959	87-010-196-080		CHIP CAPACITOR,0.1-25
C960	87-010-196-080		CHIP CAPACITOR,0.1-25
C961	87-010-152-080		C-CAP,S 8P-50 CH
CF801	87-008-261-010		FILTER,SFE10.7MA5-A
CF802	87-008-261-010		FILTER,SFE10.7MA5-A
CON602	87-099-194-010		CONN,6P 6216V
FC602	88-906-481-110		FF-CABLE,6P 1.25 480MM
FFE801	A8-6ZA-19B-070		6ZA-1 YFEUNC
J252	87-A60-024-010		JACK 6.3BLK W/S WKM
J253	87-A60-568-010		JACK,PIN 3P B/W/R HSP-243V19
J254	87-A60-238-010		TERMINAL,SP 4P(MSC)
J601	87-A60-664-010		JACK,PIN 6P W/R HSP-246V6E
J801	87-A60-202-010		TERMINAL,ANT 4P MSP-154V-02
L201	87-003-383-010		COIL,1UH-S
L202	87-003-383-010		COIL,1UH-S
L601	87-003-231-080		C-COIL,1UH
L616	87-A50-267-010		COIL,33UHRCR-875D
L770	87-005-849-080		COIL,10UH(CECS)
L771	87-A50-165-010		COIL,FM DET-N(TOK)
L772	87-A90-245-010		FLTR,CFAZH-450(TOK)
L832	87-005-847-080		COIL,2.2UH(CECS)
L981	87-NF4-650-010		COIL,AM PACK 4N(TOK)
⚠ PR201	87-026-691-080		FUSE,10A 125V 251
⚠ PR202	87-026-691-080		FUSE,10A 125V 251
R123	87-022-200-080		RES,M/F 0.56-1W J
R229	87-A00-257-080		RES,M/F 0.15-1W J
R230	87-A00-257-080		RES,M/F 0.15-1W J
RY101	87-045-389-010		RELAY,OSA-SS-212DM5
RY201	87-045-382-010		RELAY,OUAZ-SH-112L
W1	85-NF5-628-010		F-CABLE,7P-2.5
X721	87-A70-061-010		VIB,XTAL 4.500MHZ CSA-309
FRONT C.B			

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C1	87-012-145-080		CAP,CHIP S 270P CH
C2	87-012-145-080		CAP,CHIP S 270P CH
C3	87-012-145-080		CAP,CHIP S 270P CH
C4	87-012-145-080		CAP,CHIP S 270P CH
C5	87-012-145-080		CAP,CHIP S 270P CH
C6	87-012-145-080		CAP,CHIP S 270P CH
C7	87-012-158-080		C-CAP,S 390P-50 CH
C8	87-012-145-080		CAP,CHIP S 270P CH
C9	87-012-145-080		CAP,CHIP S 270P CH
C10	87-012-145-080		CAP,CHIP S 270P CH
C11	87-012-145-080		CAP,CHIP S 270P CH
C12	87-012-158-080		C-CAP,S 390P-50 CH
C13	87-012-145-080		CAP,CHIP S 270P CH
C102	87-018-123-080		CAP,CER 220P-50V
C103	87-010-197-080		CAP,CHIP 0.01 DM
C104	87-010-198-080		CAP,CHIP 0.022
C105	87-010-198-080		CAP,CHIP 0.022
C107	87-012-157-080		C-CAP,S 330P-50 CH
C108	87-010-391-040		CAP,E 10-35 SME
C112	87-010-196-080		CHIP CAPACITOR,0.1-25
C113	87-A10-189-040		CAP,E 220-10
C114	87-010-196-080		CHIP CAPACITOR,0.1-25
C116	87-010-494-040		CAP,E 1-50 GAS
C117	87-010-555-040		CAP,E 100-10 GAS
C118	87-010-194-080		CAP,CHIP 0.047
C119	87-010-408-040		CAP,E 47-50 SME
C120	87-010-404-040		CAP,E 4.7-50 SME
C121	87-010-404-040		CAP,E 4.7-50 SME
C122	87-018-208-080		CAP,0.047-50F
C123	87-010-196-080		CHIP CAPACITOR,0.1-25
C124	87-010-196-080		CHIP CAPACITOR,0.1-25
C125	87-010-196-080		CHIP CAPACITOR,0.1-25
C126	87-010-312-080		C-CAP,S 15P-50 CH
C127	87-010-196-080		CHIP CAPACITOR,0.1-25
C128	87-010-178-080		CHIP CAP,1000P
C130	87-010-320-080		CHIP CAP,68P
C131	87-010-316-080		C-CAP,S 33P-50 CH
C132	87-010-178-080		CHIP CAP,1000P
C225	87-010-196-080		CHIP CAPACITOR,0.1-25
C226	87-010-196-080		CHIP CAPACITOR,0.1-25
C261	87-010-322-080		C-CAP,S 100P-50 CH
C262	87-010-322-080		C-CAP,S 100P-50 CH
C263	87-010-322-080		C-CAP,S 100P-50 CH
C264	87-010-322-080		C-CAP,S 100P-50 CH
C265	87-010-322-080		C-CAP,S 100P-50 CH
C266	87-010-322-080		C-CAP,S 100P-50 CH
C351	87-012-158-080		C-CAP,S 390P-50 CH
C352	87-010-196-080		CHIP CAPACITOR,0.1-25
C353	87-010-196-080		CHIP CAPACITOR,0.1-25
C354	87-010-196-080		CHIP CAPACITOR,0.1-25
C355	87-010-196-080		CHIP CAPACITOR,0.1-25
C356	87-010-196-080		CHIP CAPACITOR,0.1-25
C357	87-010-196-080		CHIP CAPACITOR,0.1-25
C403	87-010-992-080		C-CAP,S 0.047-25 B
C404	87-010-992-080		C-CAP,S 0.047-25 B
C405	87-010-494-040		CAP,E 1-50 GAS
C406	87-010-494-040		CAP,E 1-50 GAS
C407	87-010-184-080		CHIP CAPACITOR,3300P(K)
C408	87-010-184-080		CHIP CAPACITOR,3300P(K)
C409	87-010-198-080		CAP,CHIP 0.022
C410	87-010-198-080		CAP,CHIP 0.022
C411	87-A10-201-080		C-CAP,S 0.33-16 KB
C412	87-A10-201-080		C-CAP,S 0.33-16 KB
C413	87-010-196-080		CHIP CAPACITOR,0.1-25
C414	87-010-374-040		CAP,E 47-10
C415	87-010-549-040		CAP,E 47-6.3 GAS
C416	87-010-196-080		CHIP CAPACITOR,0.1-25
C417	87-016-081-080		C-CAP,S 0.1-16 RK
C418	87-010-560-040		CAP,E 10-50 GAS
C501	87-010-319-080		C-CAP,S 56P-50 CH
C502	87-010-319-080		C-CAP,S 56P-50 CH
C503	87-012-393-080		C-CAP,S 0.22-16 R K
C504	87-010-197-080		CAP,CHIP 0.01 DM
C505	87-010-180-080		C-CER,1500P
C506	87-010-213-080		C-CAP,S 0.015-50 B
C507	87-010-213-080		C-CAP,S 0.015-50 B
C508	87-010-197-080		CAP,CHIP 0.01 DM
C509	87-010-181-080		CAP,CHIP S 1800P
C510	87-010-196-080		CHIP CAPACITOR,0.1-25
C511	87-018-209-080		CAP,CER 0.1-50V
C512	87-010-553-040		CAP,E 47-16 GAS
C513	87-010-494-040		CAP,E 1-50 GAS
C514	87-010-494-040		CAP,E 1-50 GAS
C515	87-010-183-080		C-CAP,S 2700P-50 B
C516	87-010-183-080		C-CAP,S 2700P-50 B
C517	87-012-141-080		CHIP CAPACITOR,0.22-16F
C518	87-010-196-080		CHIP CAPACITOR,0.1-25
C519	87-010-263-040		CAP,E 100-10
C520	87-010-322-080		C-CAP,S 100P-50 CH
C521	87-010-322-080		C-CAP,S 100P-50 CH
C522	87-010-322-080		C-CAP,S 100P-50 CH
C556	87-010-196-080		CHIP CAPACITOR,0.1-25
C601	87-010-498-040		CAP,E 10-16 GAS
C602	87-010-186-080		CAP,CHIP 4700P
C603	87-010-405-040		CAP,E 10-50
C604	87-010-382-040		CAP,E 22-25 SME
C605	87-010-196-080		CHIP CAPACITOR,0.1-25
C606	87-010-322-080		C-CAP,S 100P-50 CH
C607	87-010-321-080		CHIP CAPACITOR,82P(J)
C608	87-010-196-080		CHIP CAPACITOR,0.1-25
C609	87-010-545-040		CAP,E 0.22-50 SME
C610	87-010-322-080		C-CAP,S 100P-50 CH
C611	87-010-177-080		C-CAP,S 820P-50 SL
C612	87-010-176-080		C-CAP,S 680P-50 SL
C614	87-010-248-040		CAP,E 220-10 SME
C670	87-010-196-080		CHIP CAPACITOR,0.1-25
C720	87-010-196-080		CHIP CAPACITOR,0.1-25
C723	87-010-154-080		CAP CHIP,10P
C725	87-010-196-080		CHIP CAPACITOR,0.1-25
C726	87-010-196-080		CHIP CAPACITOR,0.1-25
CON103	87-099-015-010		CONN,13P 6216V
CON104	87-099-197-010		CONN,9P 6216 V
FB601	87-008-372-080		FILTER,EMI BL OIRNI
FC202	87-NB5-634-010		FF-CABLE,25P 1.00 170MM
FC301	88-913-151-110		FF-CABLE,13P 1.25
FC800	88-909-261-110		FF-CABLE,9P 1.25
FL101	87-NB5-603-010		FL,BJ592GK
J601	87-A60-284-010		JACK,3.5MO(MSC)
J602	87-A60-284-010		JACK,3.5MO(MSC)
L501	87-005-448-080		COIL,220UH K
LED201	87-070-201-080		LED,SLP9118C-51-S-T1
LED202	87-070-201-080		LED,SLP9118C-51-S-T1
LED203	87-070-201-080		LED,SLP9118C-51-S-T1
LED204	87-070-201-080		LED,SLP9118C-51-S-T1
LED205	87-070-201-080		LED,SLP9118C-51-S-T1
LED206	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED207	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED208	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED209	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED210	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED211	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED212	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED213	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED214	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED215	87-A40-380-080		LED,SEL6510C-TP5 GRN
LED217	87-070-281-080		LED,SLZ736A-25-S-T1
LED218	87-070-281-080		LED,SLZ736A-25-S-T1
LED219	87-070-281-080		LED,SLZ736A-25-S-T1
LED220	87-070-281-080		LED,SLZ736A-25-S-T1
LED221	87-070-281-080		LED,SLZ736A-25-S-T1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
LED234	87-A40-446-080		LED,SLP-7131F-81H-S-T1 P-GRN
LED235	87-A40-446-080		LED,SLP-7131F-81H-S-T1 P-GRN
LED236	87-A40-446-080		LED,SLP-7131F-81H-S-T1 P-GRN
S301	87-A90-095-080		SW,TACT EVQ11G04M
S302	87-A90-095-080		SW,TACT EVQ11G04M
S303	87-A90-095-080		SW,TACT EVQ11G04M
S304	87-A90-095-080		SW,TACT EVQ11G04M
S305	87-A90-095-080		SW,TACT EVQ11G04M
S321	87-A90-095-080		SW,TACT EVQ11G04M
S322	87-A90-095-080		SW,TACT EVQ11G04M
S323	87-A90-095-080		SW,TACT EVQ11G04M
S324	87-A90-095-080		SW,TACT EVQ11G04M
S325	87-A90-095-080		SW,TACT EVQ11G04M
S326	87-A90-095-080		SW,TACT EVQ11G04M
S327	87-A90-095-080		SW,TACT EVQ11G04M
S328	87-A90-095-080		SW,TACT EVQ11G04M
S329	87-A90-095-080		SW,TACT EVQ11G04M
S341	87-A90-095-080		SW,TACT EVQ11G04M
S342	87-A90-095-080		SW,TACT EVQ11G04M
S343	87-A90-095-080		SW,TACT EVQ11G04M
S344	87-A90-095-080		SW,TACT EVQ11G04M
S345	87-A90-095-080		SW,TACT EVQ11G04M
S346	87-A90-095-080		SW,TACT EVQ11G04M
S347	87-A90-095-080		SW,TACT EVQ11G04M
S348	87-A90-095-080		SW,TACT EVQ11G04M
S361	87-A90-095-080		SW,TACT EVQ11G04M
S362	87-A90-095-080		SW,TACT EVQ11G04M
S363	87-A90-095-080		SW,TACT EVQ11G04M
S364	87-A90-095-080		SW,TACT EVQ11G04M
S365	87-A90-095-080		SW,TACT EVQ11G04M
S366	87-A90-095-080		SW,TACT EVQ11G04M
S367	87-A90-095-080		SW,TACT EVQ11G04M
S368	87-A90-095-080		SW,TACT EVQ11G04M
S369	87-A90-095-080		SW,TACT EVQ11G04M
S370	87-A90-095-080		SW,TACT EVQ11G04M
S371	87-A90-095-080		SW,TACT EVQ11G04M
SW101	87-A90-535-010		SW,RTRY EC16B24304
SW102	87-A90-085-010		SW,RTRY EC16B24204
X202	87-A70-070-080		VIB,CER 5.76MHZ CRHF

MD KEY C.B

C865	87-010-196-080		CHIP CAPACITOR,0.1-25
C866	87-010-322-080		C-CAP,S 100P-50 CH
C867	87-010-322-080		C-CAP,S 100P-50 CH
C868	87-010-322-080		C-CAP,S 100P-50 CH
CON800	87-099-197-010		CONN,9P 6216 V
LED801	87-A40-452-080		LED,SEL6210S-TP7 RED
LED802	87-A40-452-080		LED,SEL6210S-TP7 RED
LED803	87-A40-452-080		LED,SEL6210S-TP7 RED
LED804	87-A40-452-080		LED,SEL6210S-TP7 RED
LED805	87-A40-452-080		LED,SEL6210S-TP7 RED
LED808	87-A40-451-080		LED,SEL6510C-TP7 GRN
LED809	87-A40-451-080		LED,SEL6510C-TP7 GRN
LED810	87-A40-451-080		LED,SEL6510C-TP7 GRN
LED811	87-A40-451-080		LED,SEL6510C-TP7 GRN
LED812	87-A40-451-080		LED,SEL6510C-TP7 GRN
⚠ PR101	87-A90-246-080		PROTECTOR,0.25A 60V
S806	87-A90-095-080		SW,TACT EVQ11G04M
S807	87-A90-095-080		SW,TACT EVQ11G04M
S808	87-A90-095-080		SW,TACT EVQ11G04M
S809	87-A90-095-080		SW,TACT EVQ11G04M
S810	87-A90-095-080		SW,TACT EVQ11G04M
S811	87-A90-095-080		SW,TACT EVQ11G04M
S812	87-A90-095-080		SW,TACT EVQ11G04M

MD KK C.B

PL802	87-A90-847-080		LAMP,BQ137-30311B-ST CAP ASA
PL803	87-A90-847-080		LAMP,BQ137-30311B-ST CAP ASA

FR-MD C.B

FR-CD C.B

CON310	87-099-015-010		CONN,13P 6216V
CON311	87-099-015-010		CONN,13P 6216V
FC311	88-913-321-110		FF-CABLE,13P 1.25 320MM

MD MAIN C.B

C100	87-016-112-080		C-CAP,E 22-6.3(B6)
C101	87-016-112-080		C-CAP,E 22-6.3(B6)
C102	87-012-286-080		CAP,U 0.01-25
C103	87-010-787-080		CAP,U 0.022-25
C104	87-016-112-080		C-CAP,E 22-6.3(B6)
C105	87-010-831-080		C-CAP,U 0.1-16F
C106	87-A10-249-080		C-CAP,U 1-10 ZF
C107	87-012-195-080		C-CAP,U 100P-50CH
C108	87-012-274-080		CHIP CAP,U 1000P-50B
C109	87-010-880-080		C-CAP,E 47-6.3 MF
C111	87-016-112-080		C-CAP,E 22-6.3(B6)
C112	87-012-286-080		CAP,U 0.01-25
C113	87-012-284-080		CAP,U 6800P-50
C114	87-016-369-080		C-CAP,S 0.033-25 B K
C115	87-A10-369-080		C-CAP,S 0.47-16 K B
C116	87-012-282-080		CAP,U 4700P-50
C117	87-A10-484-080		C-CAP,S 1.0U-10 K B
C118	87-012-282-080		CAP,U 4700P-50
C119	87-016-460-080		C-CAP,S 0.22-16 B
C120	87-010-787-080		CAP,U 0.022-25
C121	87-012-286-080		CAP,U 0.01-25
C122	87-010-992-080		C-CAP,S 0.047-25 B
C123	87-012-286-080		CAP,U 0.01-25
C124	87-016-112-080		C-CAP,E 22-6.3(B6)
C125	87-016-112-080		C-CAP,E 22-6.3(B6)
C201	87-010-831-080		C-CAP,U 0.1-16F
C202	87-010-831-080		C-CAP,U 0.1-16F
C203	87-010-785-080		C-CAP,U 0.015-25BK
C204	87-A10-369-080		C-CAP,S 0.47-16 K B
C205	87-010-831-080		C-CAP,U 0.1-16F
C206	87-012-270-080		CAP,U 470P-50
C207	87-A10-369-080		C-CAP,S 0.47-16 K B
C208	87-012-286-080		CAP,U 0.01-25
C209	87-010-831-080		C-CAP,U,0.1-16F
C210	87-012-172-080		CAPACITOR CHIP,U 10P CH
C211	87-012-172-080		CAPACITOR CHIP,U 10P CH
C213	87-016-112-080		C-CAP,E 22-6.3(B6)
C214	87-012-274-080		CHIP CAP,U 1000P-50B
C217	87-012-188-080		C-CAP,U 47P-50 CH
C218	87-012-188-080		C-CAP,U 47P-50 CH
C219	87-016-112-080		C-CAP,E 22-6.3(B6)
C220	87-016-112-080		C-CAP,E 22-6.3(B6)
C221	87-010-831-080		C-CAP,U 0.1-16F
C222	87-016-112-080		C-CAP,E 22-6.3(B6)
C223	87-010-831-080		C-CAP,U 0.1-16F
C224	87-A10-685-080		C-CAP,S 470P-100 J CH
C225	87-010-831-080		C-CAP,U 0.1-16F
C226	87-010-831-080		C-CAP,U 0.1-16F
C227	87-012-274-080		CHIP CAP,U 1000P-50B
C228	87-012-274-080		CHIP CAP,U 1000P-50B
C229	87-012-274-080		CHIP CAP,U 1000P-50B
C230	87-010-831-080		C-CAP,U 0.1-16F
C241	87-012-274-080		CHIP CAP,U 1000P-50B
C242	87-012-274-080		CHIP CAP,U 1000P-50B
C251	87-010-831-080		C-CAP,U 0.1-16F
C291	87-018-134-080		CAP,TC U 0.01-16
C300	87-010-831-080		C-CAP,U 0.1-16F
C301	87-010-831-080		C-CAP,U 0.1-16F
C302	87-010-831-080		C-CAP,U 0.1-16F
C305	87-A10-249-080		C-CAP,U 1-10 ZF

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C307	87-010-831-080		C-CAP,U 0.1-16F
C308	87-010-831-080		C-CAP,U 0.1-16F
C311	87-016-112-080		C-CAP,E 22-6.3(B6)
C312	87-012-195-080		C-CAP,U 100P-50CH
C341	87-010-831-080		C-CAP,U 0.1-16 F
C342	87-010-831-080		C-CAP,U 0.1-16 F
C343	87-010-831-080		C-CAP,U 0.1-16 F
C344	87-010-831-080		C-CAP,U 0.1-16 F
C400	87-010-196-080		CHIP CAPACITOR,0.1-25
C401	87-010-831-080		C-CAP,U 0.1-16F
C402	87-010-831-080		C-CAP,U 0.1-16F
C403	87-010-831-080		C-CAP,U 0.1-16F
C404	87-010-831-080		C-CAP,U 0.1-16F
C405	87-010-661-080		C-CAP,E 10-16
C406	87-010-779-080		C-CAP,E 100-6.3
C407	87-012-197-080		C-CAP,U 150P-50 CH
C408	87-012-197-080		C-CAP,U 150P-50 CH
C411	87-012-271-080		CAP,U 560P-50
C412	87-012-271-080		CAP,U 560P-50
C413	87-012-271-080		CAP,U 560P-50
C414	87-012-271-080		CAP,U 560P-50
C417	87-012-268-080		C-CAP,U 330P-50 B
C418	87-012-268-080		C-CAP,U 330P-50 B
C423	87-012-286-080		CAP,U 0.01-25
C424	87-012-286-080		CAP,U 0.01-25
C429	87-012-286-080		CAP,U 0.01-25
C430	87-012-286-080		CAP,U 0.01-25
C431	87-010-666-080		C-CAP,E 47-16
C451	87-010-666-080		C-CAP,E 47-16
C452	87-010-196-080		CHIP CAPACITOR,0.1-25
C453	87-010-196-080		CHIP CAPACITOR,0.1-25
C454	87-010-196-080		CHIP CAPACITOR,0.1-25
C501	87-010-831-080		C-CAP,U 0.1-16F
C502	87-010-831-080		C-CAP,U 0.1-16F
C503	87-010-662-080		C-CAP,E 22-6.3
C504	87-010-831-080		C-CAP,U 0.1-16F
C505	87-010-662-080		C-CAP,E 22-6.3
C506	87-010-831-080		C-CAP,U 0.1-16F
C507	87-010-661-080		C-CAP,E 10-16
C508	87-010-831-080		C-CAP,U 0.1-16F
C509	87-010-662-080		C-CAP,E 22-6.3
C510	87-010-831-080		C-CAP,U 0.1-16F
C511	87-010-661-080		C-CAP,E 10-16
C517	87-012-198-080		CAP,180P
C518	87-012-198-080		CAP,180P
C523	87-010-662-080		C-CAP,E 22-6.3
C524	87-010-662-080		C-CAP,E 22-6.3
C525	87-012-274-080		CHIP CAP,U 1000P-50B
C526	87-012-274-080		CHIP CAP,U 1000P-50B
C527	87-010-661-080		C-CAP,E 10-16
C528	87-010-661-080		C-CAP,E 10-16
C529	87-012-276-080		CAP,CHIP SS 1500 PBK
C530	87-012-276-080		CAP,CHIP SS 1500 PBK
C531	87-012-199-080		CAP,220P
C532	87-012-199-080		CAP,220P
C533	87-010-661-080		C-CAP,E 10-16
C534	87-010-661-080		C-CAP,E 10-16
C535	87-010-387-080		CAP,E 470-25 SME
C536	87-010-196-080		CHIP CAPACITOR,0.1-25
C537	87-010-666-080		C-CAP,E 47-16
C538	87-010-196-080		CHIP CAPACITOR,0.1-25
C539	87-010-846-080		C-CAP,E 4.7-35V
C540	87-010-846-080		C-CAP,E 4.7-35V
C600	87-010-779-080		C-CAP,E 100-6.3
C601	87-010-779-080		C-CAP,E 100-6.3
C602	87-010-779-080		C-CAP,E 100-6.3
C603	87-A10-711-080		C-CAP,E 100-6.3 M MF
C604	87-010-779-080		C-CAP,E 100-6.3
C605	87-012-286-080		CAP,U 0.01-25
C606	87-010-831-080		C-CAP,U 0.1-16F
C607	87-010-196-080		CHIP CAPACITOR,0.1-25
C608	87-010-221-080		CAP,ELECT 470-10V
C611	87-010-385-080		CAP,ELECT 220-25V
C613	87-010-178-080		CHIP CAP 1000P
C614	87-A10-771-010		CAP,E 470-10 LXV
C615	87-010-322-080		C-CAP,S 100P-50CH
C621	87-010-666-080		C-CAP,E 47-16
C731	87-010-831-080		C-CAP,U 0.1-16F
C741	87-010-196-080		CHIP CAPACITOR,0.1-25
C851	87-010-831-080		C-CAP,U 0.1-16F
CN100	87-A60-088-080		C-CONN,22P CFP55
FB1	87-A90-762-010		F-BEAD,3407MFT
FB2	87-A90-762-010		F-BEAD,3407MFT
FB3	87-A90-762-010		F-BEAD,3407MFT
FC300	87-NB5-635-110		FF-CABLE,23P 1.00 750MM
FC600	87-NB5-636-110		FF-CABLE,12P 1.00 900MM
L100	87-A50-117-080		C-COIL,10UHLQH3C
L101	87-A50-012-080		C-COIL,100UH LQH3C
L102	87-A50-117-080		C-COIL,10UHLQH3C
L103	87-A50-117-080		C-COIL,10UHLQH3C
L201	87-A50-117-080		C-COIL,10UHLQH3C
L202	87-A50-117-080		C-COIL,10UHLQH3C
L203	87-A50-116-080		C-COIL,4.7UHLQH3C
L204	87-A50-116-080		C-COIL,4.7UHLQH3C
L301	87-A50-117-080		C-COIL,10UHLQH3C
L501	87-A50-116-080		C-COIL,4.7UHLQH3C
L502	87-A50-116-080		C-COIL,4.7UHLQH3C
L504	87-005-774-080		C-COIL,4BLH
L505	87-005-774-080		C-COIL,4BLH
L601	87-A50-095-010		COIL,68UH RCR875D
L602	87-A50-267-010		COIL,33UHRCR-875D
L603	87-A50-163-080		C-COIL,ZBFS5101-PT
L604	87-A50-163-080		C-COIL,ZBFS5101-PT
M401	87-045-305-010		MOTOR,RF-500TB DC-5V(2MA)
M402	87-045-305-010		MOTOR,RF-500TB DC-5V(2MA)
R403	87-022-247-080		C-RES,U 22K-1/16W F
R404	87-022-247-080		C-RES,U 22K-1/16W F
R407	87-022-243-080		C-RES,U 15K-1/16W F
R408	87-022-243-080		C-RES,U 15K-1/16W F
R409	87-022-241-080		C-RES,U 12K-1/16W F
R410	87-022-241-080		C-RES,U 12K-1/16W F
R411	87-022-247-080		C-RES,U 22K-1/16W F
R412	87-022-247-080		C-RES,U 22K-1/16W F
R415	87-022-231-080		C-RES,U 4.7K-1/16W F
R416	87-022-231-080		C-RES,U 4.7K-1/16W F
R417	87-022-241-080		C-RES,U 12K-1/16W F
R418	87-022-241-080		C-RES,U 12K-1/16W F
R423	87-025-564-080		C-RES,U M/F 47K D
R424	87-025-564-080		C-RES,U M/F 47K D
R425	87-022-583-080		C-RES,U M/F 12K D
R426	87-022-583-080		C-RES,U M/F 12K D
S701	87-A90-788-080		C-SW,MICRO SPPB64
S702	87-036-110-010		PUSH,SWITCH
S703	87-036-110-010		PUSH,SWITCH
X200	87-A70-105-080		C-VIB,XTAL 22.5792MHZ SMD-49
X301	87-030-369-080		C-VIB,CER PBRC12.00B
MD DIGITAL C.B			
C901	87-010-196-080		CHIP CAPACITOR,0.1-25
C902	87-010-178-080		CHIP CAP,1000P
C903	87-010-178-080		CHIP CAP,1000P
C904	87-010-196-080		CHIP CAPACITOR,0.1-25
FC205	87-ZG5-634-010		CABLE,FFC 4P-1.00
MD MOTOR C.B			
FC903	87-ZG5-633-010		CABLE,FFC 8P-0.50-135
S901	87-036-366-080		C-SW,PUSH SPPW9-5.45
S902	87-036-350-080		C-SW,PUSH SPPW9-4.8

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
S903	87-036-269-080		SW,PUSH ESE102MH1
MD DISH SENS C.B			
PS901	87-026-573-010		IC,GP1S53V
MD O-L HEAD C.B			
AC1 C.B			
⚠ F101	87-035-416-010		FUSE,3A 250V T 239UL
⚠ FB1	87-003-317-010		F-BEAD,F0H2515-LG7
⚠ FC1	87-A90-505-080		FUSE CLAMP,TP00351-51
⚠ FC2	87-A90-505-080		FUSE CLAMP,TP00351-51
⚠ PT101	87-NB5-607-010		PT,7NB-5 U
⚠ T1	87-A60-317-010		TERMINAL,1P MSC
⚠ T2	87-A60-317-010		TERMINAL,1P MSC
AC2 C.B			
⚠ PR1	87-026-691-080		FUSE,10A 125V 251
⚠ PR2	87-026-691-080		FUSE,10A 125V 251
⚠ PR5	87-026-691-080		FUSE,10A 125V 251
⚠ PR6	87-026-691-080		FUSE,10A 125V 251

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding

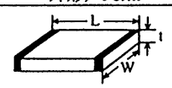
88 - □□□ □□□

A
抵抗部品コード
Resistor Code

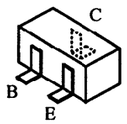
桁表示
Figure

抵抗値
Value of resistor

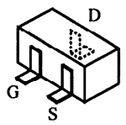
チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm) 外形／Form	L	W	t	抵抗コード ：A Resistor Code: A
1／16W	1608	±5%	CJ		1.6	0.8	0.45	108
1／10W	2125	±5%	CJ		2	1.25	0.45	118
1／8W	3216	±5%	CJ		3.2	1.6	0.55	128

TRANSISTOR ILLUSTRATION



2SA1235 RN1305
2SA1588 RN1410
2SC2714 RN2305
2SC3052 RT1N141C
2SA4116 RT1N144C
CMBT5551 RT1P141C
CSD1306E RT1P144C



2SK2158

E C B

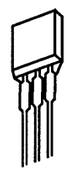
KTA1266
KTC3198

E B C

C2N5401

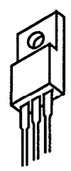
E C B

2SA952



E C B

2SC4115

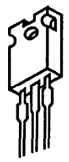


B C E

2SB1625
2SD2494
2SB1375

G D S

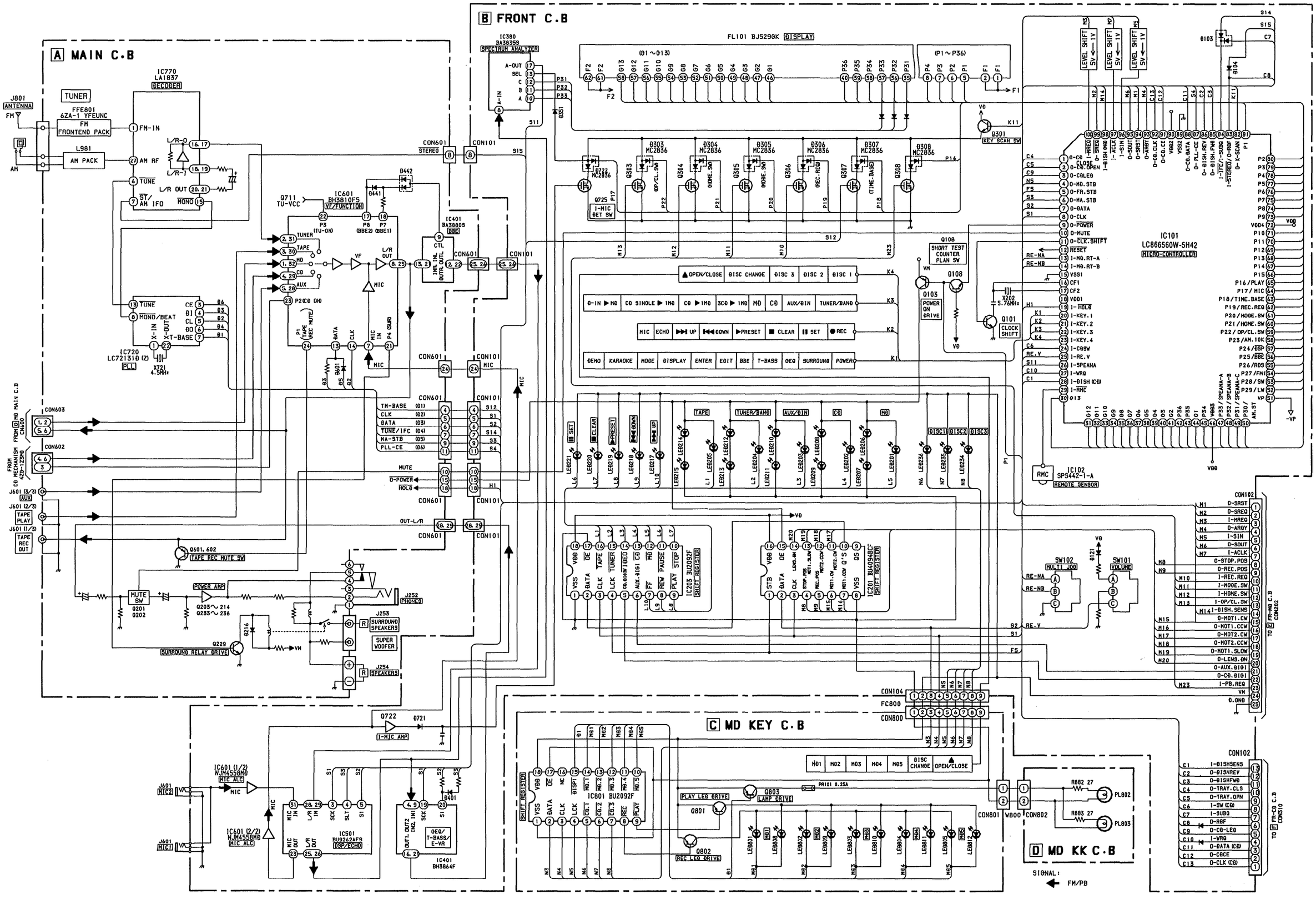
2SK2937



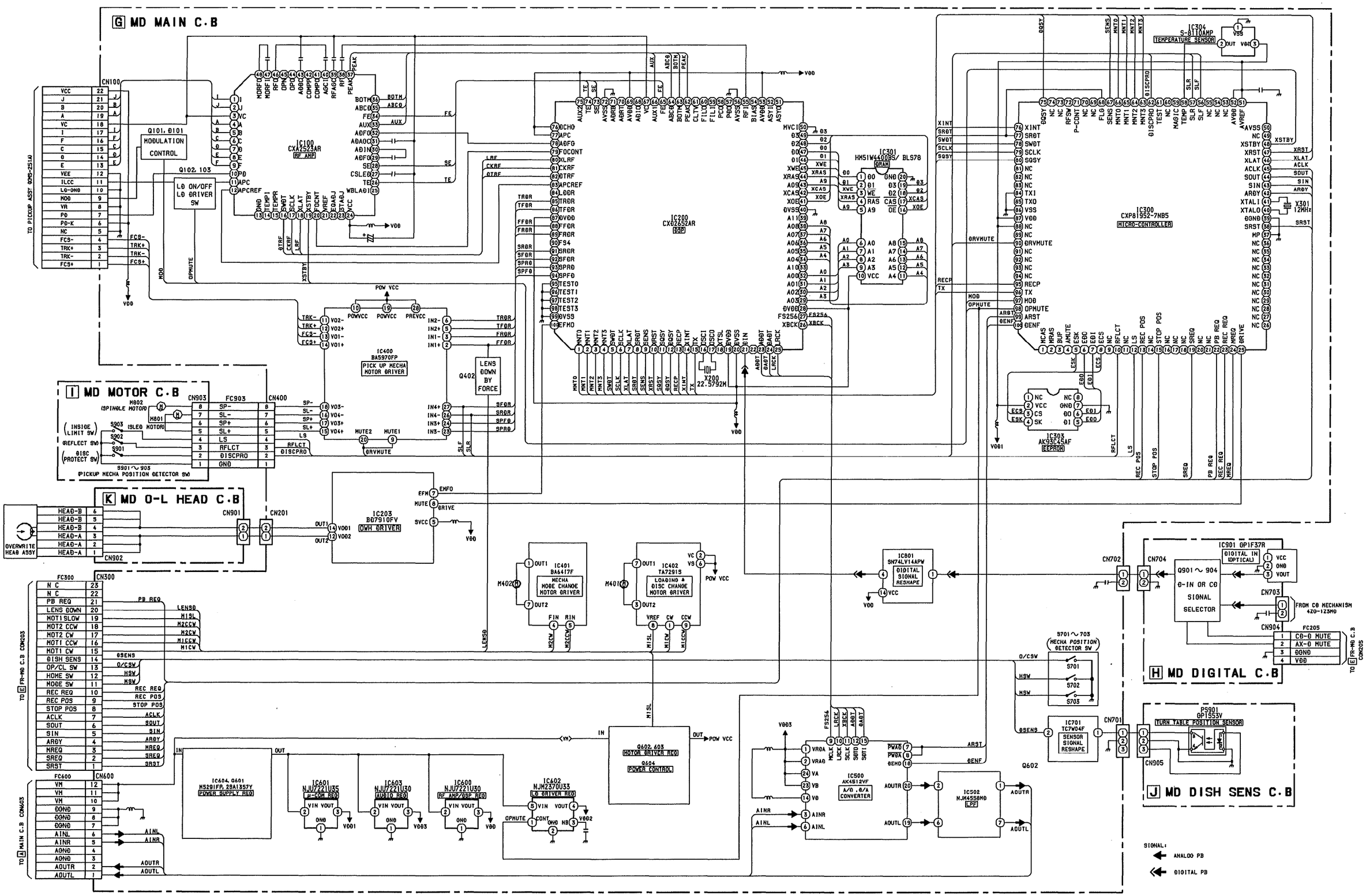
E C B

2SA1357
2SD1381

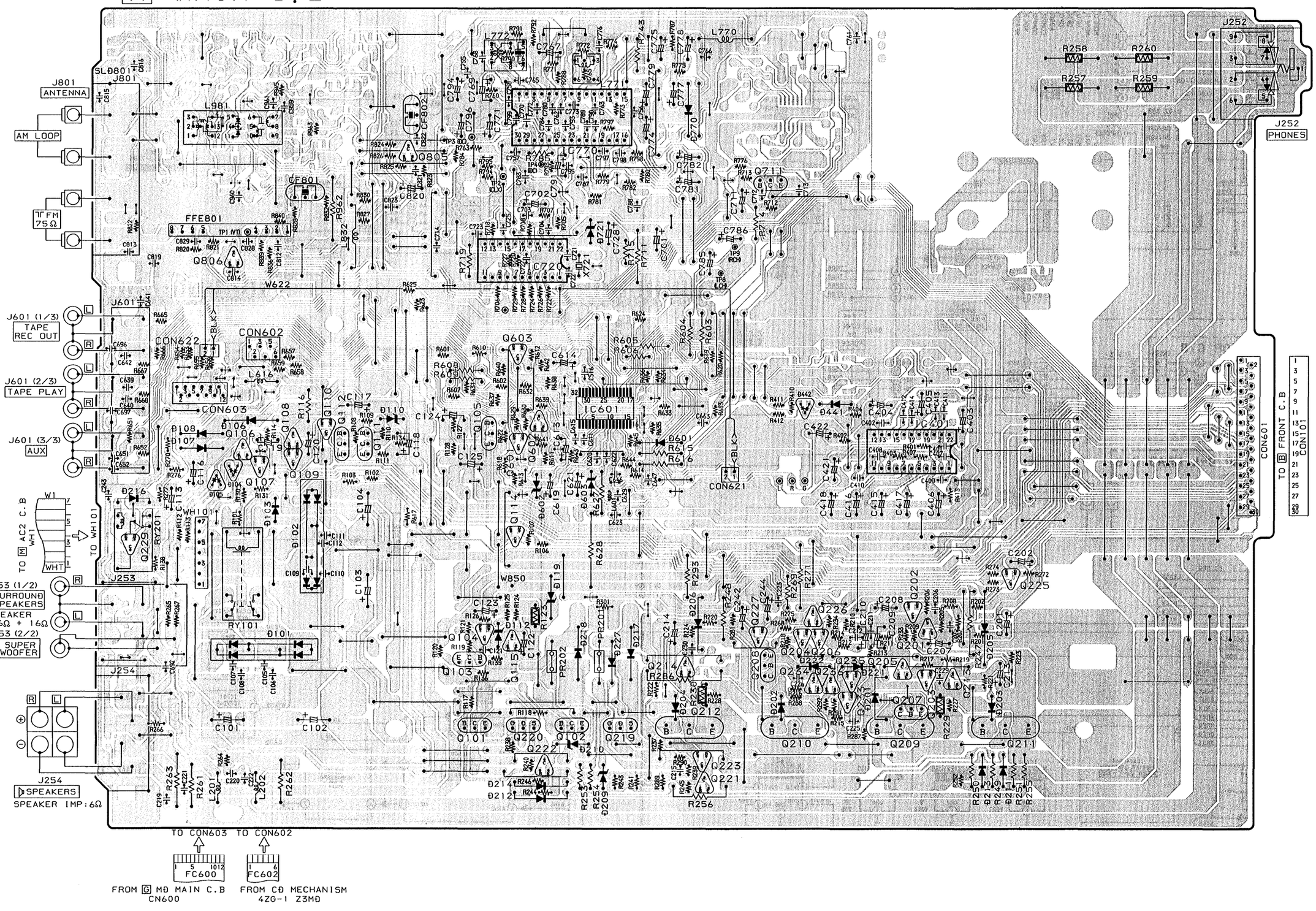
BLOCK DIAGRAM – 1 (MAIN / FRONT)



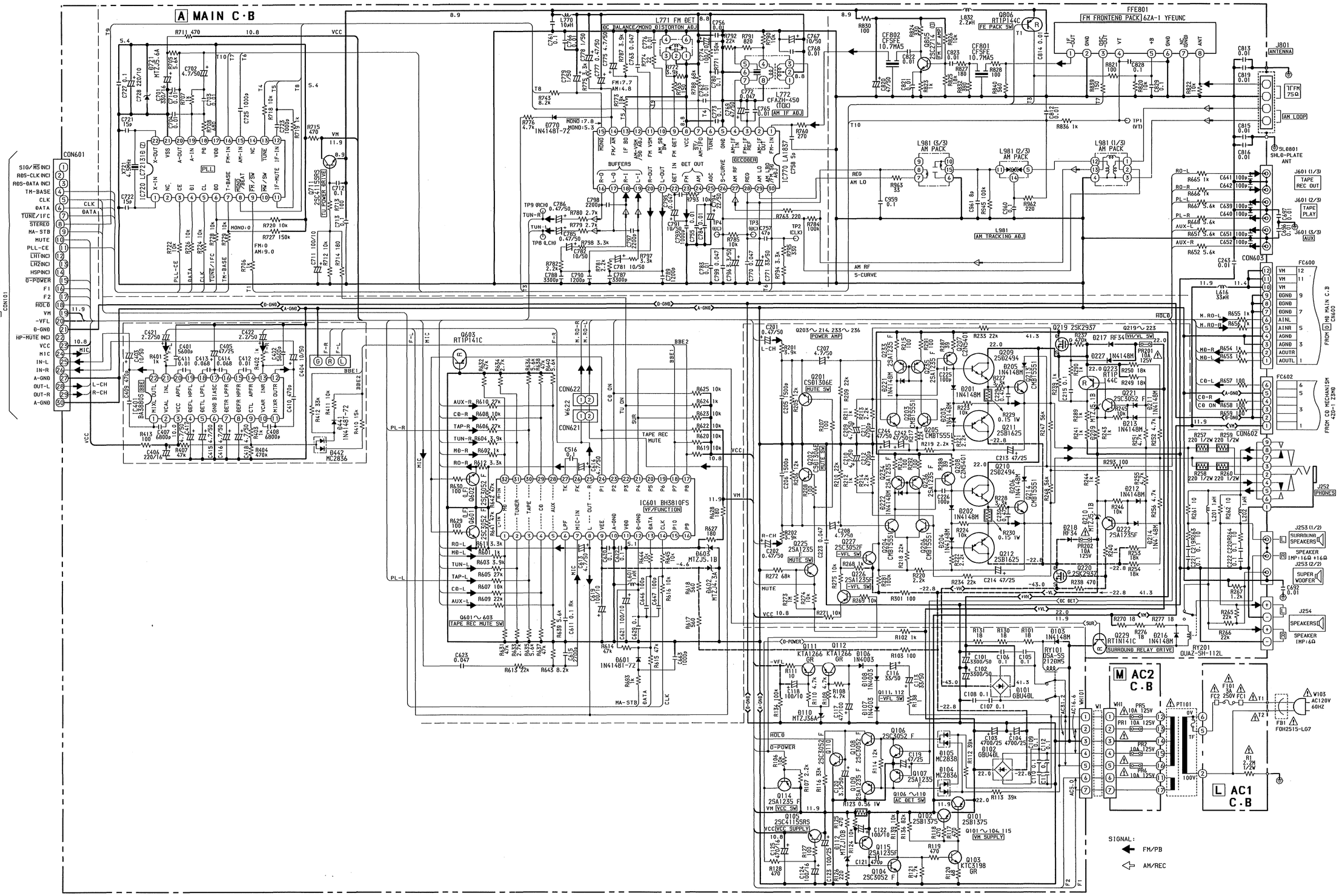
BLOCK DIAGRAM – 2 (MD MAIN)



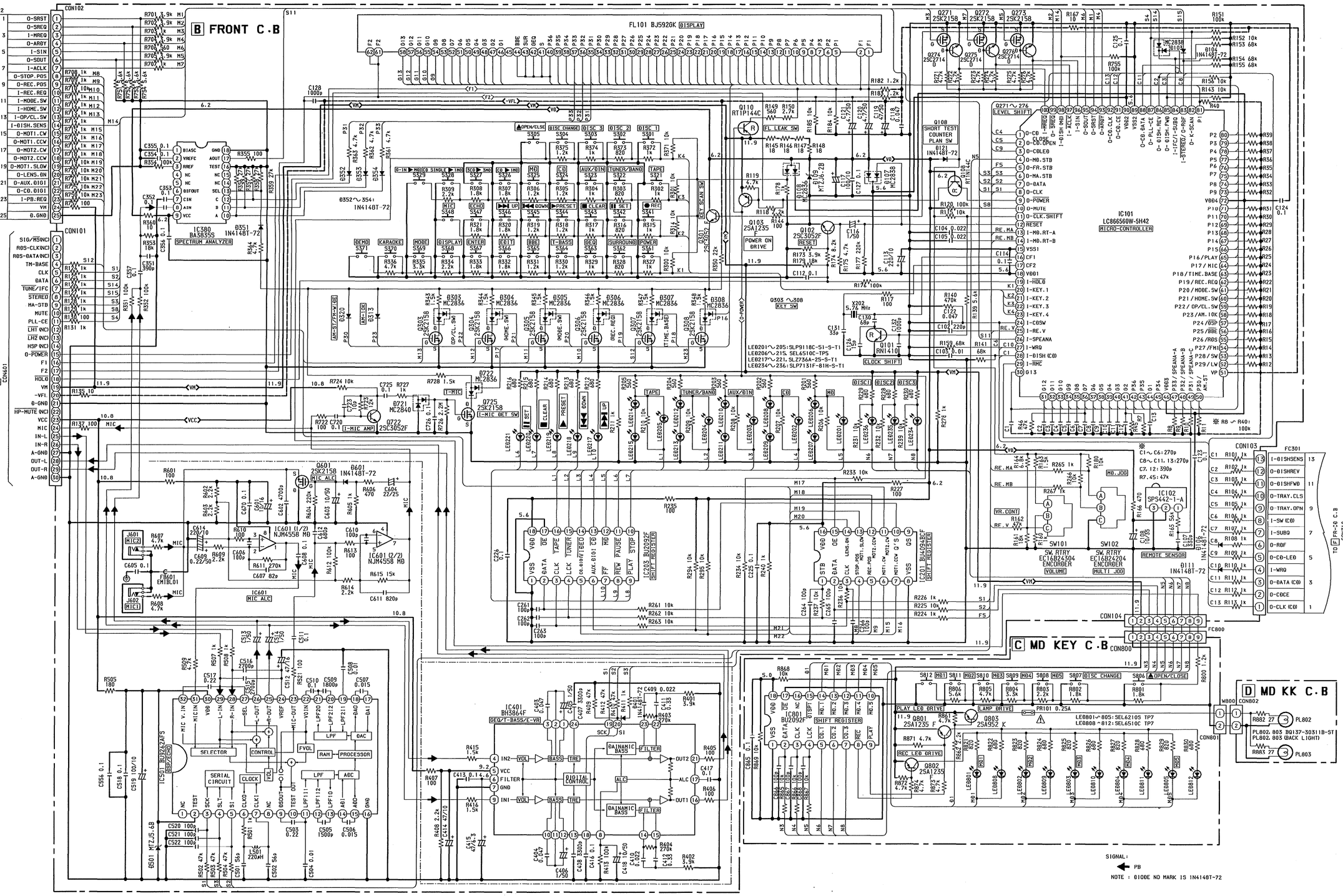
A MAIN C.B


J801
ANTENNA
AM LOOP
FM 75Ω
J601 (1/3)
TAPE REC OUT
J601 (2/3)
TAPE PLAY
J601 (3/3)
AUX
J253 (1/2)
SURROUND SPEAKERS
SPEAKER IMP:16Ω + 16Ω
J253 (2/2)
SUPER WOOFER
J254
SPEAKERS
SPEAKER IMP:6Ω
J252
PHONES
TO E AC2 C.B
TO WH101
TO CON603
TO CON602
FROM G MD MAIN C.B CN600
FROM CD MECHANISM 4ZG-1 Z3MD
TO B FRONT C.B CON101
CON601
CON621
IC601
Q101
Q102
Q103
Q104
Q107
Q201
Q202
Q203
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q221
Q222
Q223
Q225
Q226
Q227
Q229
Q234
Q235
Q603
Q711
Q721
Q770
Q782
Q801
Q806
D101
D102
D103
D104
D105
D106
D107
D108
D110
D119
D201
D202
D203
D204
D205
D206
D209
D210
D211
D212
D214
D216
D217
D218
D219
D220
D221
D227
D441
D601
D602
D721
D770
D801
CF801
CF802
RY101
RY201
X721
L201
L202
L772
L981
W622
W850
WH101
W1
FFE801

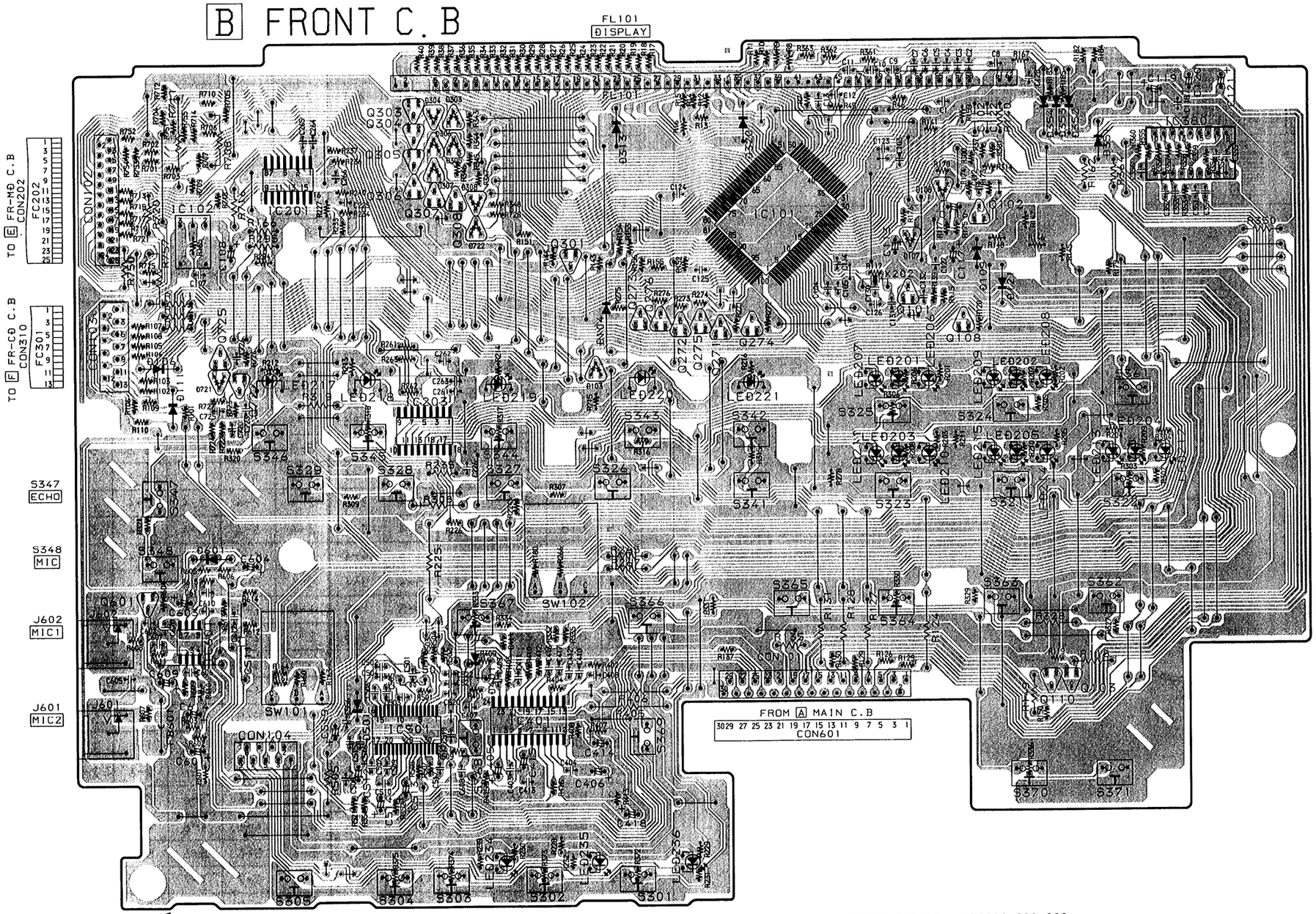
SCHEMATIC DIAGRAM – 1 (MAIN)



SCHEMATIC DIAGRAM – 2 (FRONT / MD KEY / MD KK)

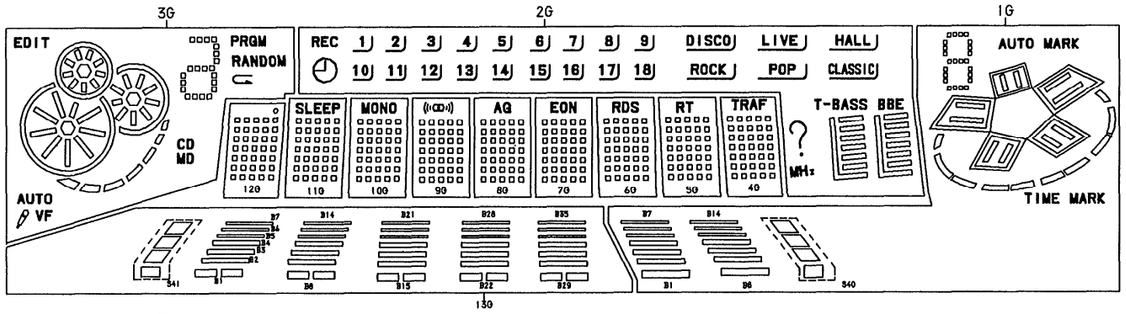


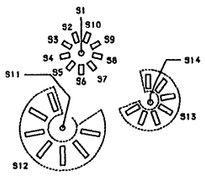
B FRONT C.B

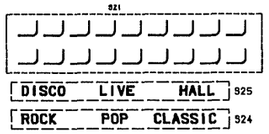

FL101
DISPLAY
TO E FR-MD C.B CON202
FC202
TO E FR-CD C.B CON310
FC301
S347 ECHO
S348 MIC
J602 MIC1
J601 MIC2
FROM A MAIN C.B
3029 27 25 23 21 19 17 15 13 11 9 7 5 3 1
CON601
TO CON104
9 7 5 3 1
TO C MD KEY C.B CON800
LED217, S346
UP
TUNING
LED218, S345
DOWN
LED219 S344
PRESET
SW201 VOLUME
LED220 S343
CLEAR
LED221 S342
SET
LED207, 201, 206 S325
MD
LED209, 202, 208 S324
CD
FUNCTION
S361 POWER
S329 D-IN MD
S328 CD SINGLE 1MD
S327 3CD 3MD
S326 CD 1MD
S341 REC
LED211, 203, 210 S323
AUX/D-IN
LED215, 205, 214 S321
TAPE
LED213, 204, 212 S322
TUNER/BAND
SW101 VOLUME
S367 ENTER
SW102 MULTI JOG
S366 EDIT
S365 BBE
S364 T-BASS
S363 GEQ
S362 SURROUND
S368 DISPLAY
S369 MODE
S370 KARAOKE
S371 DEMO
S305 OPEN/CLOSE
S304 DISC CHANGE
LED234 S303 3
LED235 S302 2
LED236 S301 1
DISC DIRECT PLAY

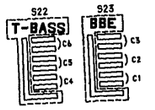
FL (BJ592GK) GRID ASSIGNMENT / ANODE CONNECTION

GRID ASSIGNMENT

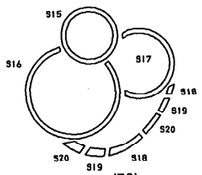




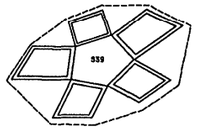


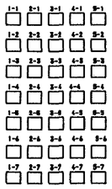


(2G)

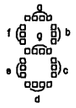


(3G)

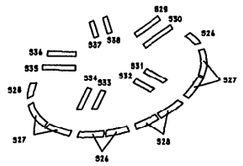




(4G-12G)



(1G, 3G)



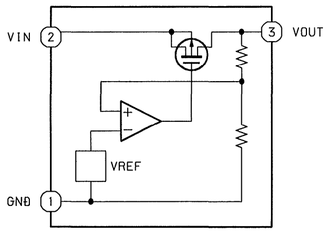
(1G)

ANODE CONNECTION

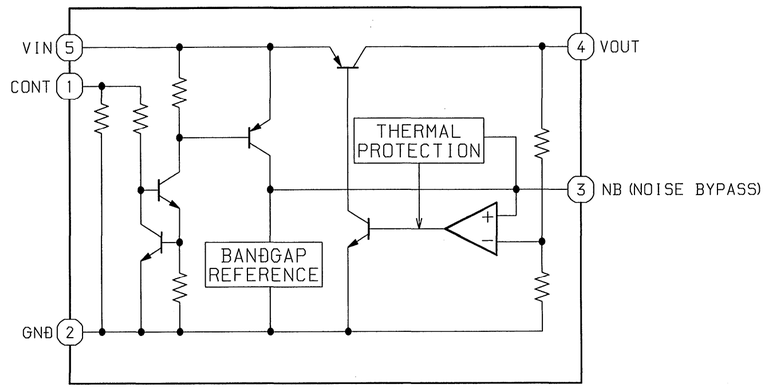
	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	S41	○	SLEEP	MONO	((∞))	AG	EON	RDS	RT	TRAF	PRGM	(DISCO)	B1
P2	B1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	RANDOM	(LIVE)	B8
P3	B8	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	↩	(HALL)	B2
P4	B15	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	a	(ROCK)	B9
P5	B22	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	b	(POP)	B3
P6	B29	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	c	(CLASSIC)	B10
P7	B2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	d	C3	B4
P8	B9	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	g	C2	B11
P9	B16	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	e	🕘	B5
P10	B23	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	EDIT	REC	B12
P11	B30	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	S2	C6	B6
P12	B3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	S3	C5	B13
P13	B10	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	S10	S21	B7
P14	B17	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	S4	1	B14
P15	B24	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	S1	2	AUTO MARK
P16	B31	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	S9	3	TIME MARK
P17	B4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	S5	4	S26
P18	B11	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	S8	5	S27
P19	B18	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	S6	6	S28
P20	B25	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	S7	7	S29
P21	B32	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	S15	8	S30
P22	B5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	S11	9	S31
P23	B12	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	S12	10	S32
P24	B19	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	S16	11	S33
P25	B26	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	S14	12	S34
P26	B33	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	S13	13	S35
P27	B6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	S17	14	S36
P28	B13	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	CD	15	S37
P29	B20	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	MD	16	S38
P30	B27	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	VF	17	a, d
P31	B34	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	AUTO	18	b
P32	B7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	S18	C4	c
P33	B14	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	S19	?	e
P34	B21	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	S20	MHz	f
P35	B28	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	-	C1	g
P36	B35	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	-	S22	S39
P37	-	-	-	-	-	-	-	-	-	-	-	-	S40
P38	-	-	-	-	-	-	-	-	-	-	-	S24	-
P39	-	-	-	-	-	-	-	-	-	-	-	S25	-
P40	-	-	-	-	-	-	-	-	-	-	-	S23	-

IC BLOCK DIAGRAM – 1

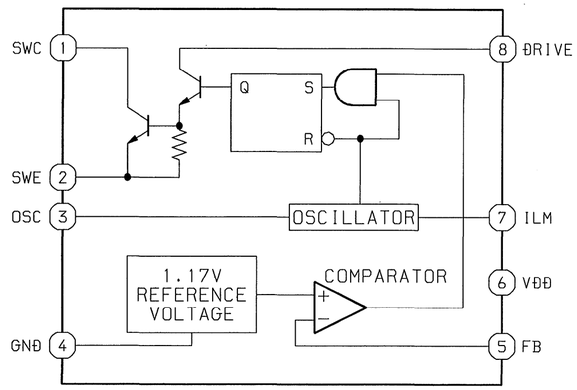
IC, NJU7221



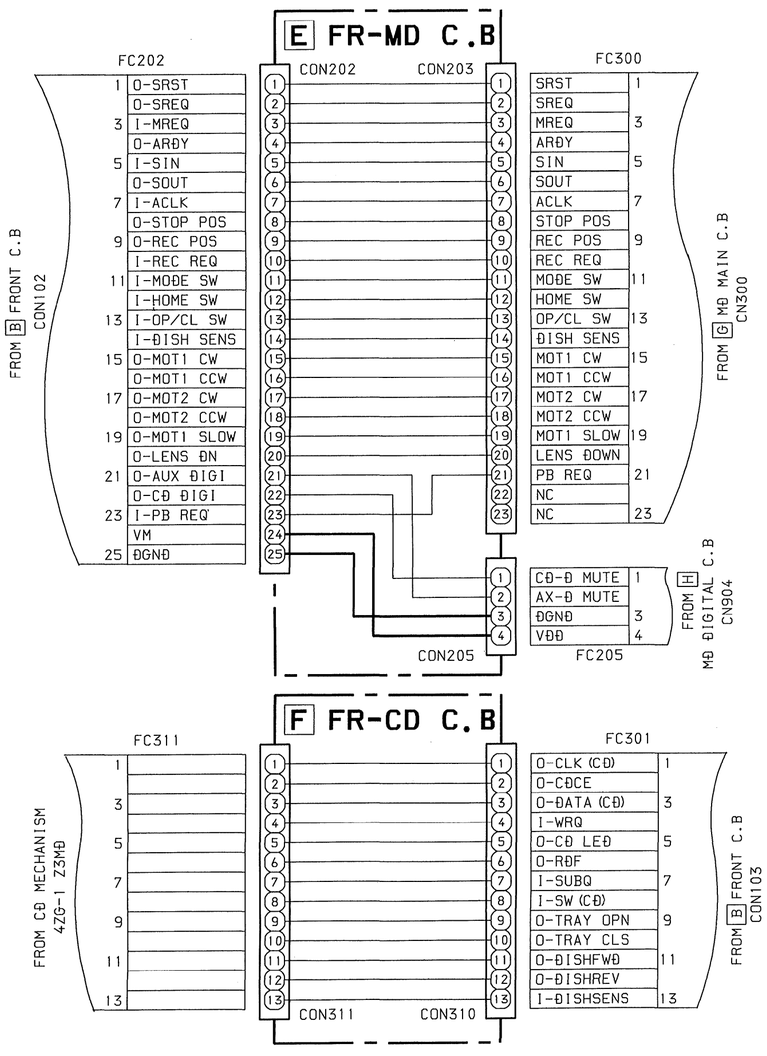
IC, NJM2370U33



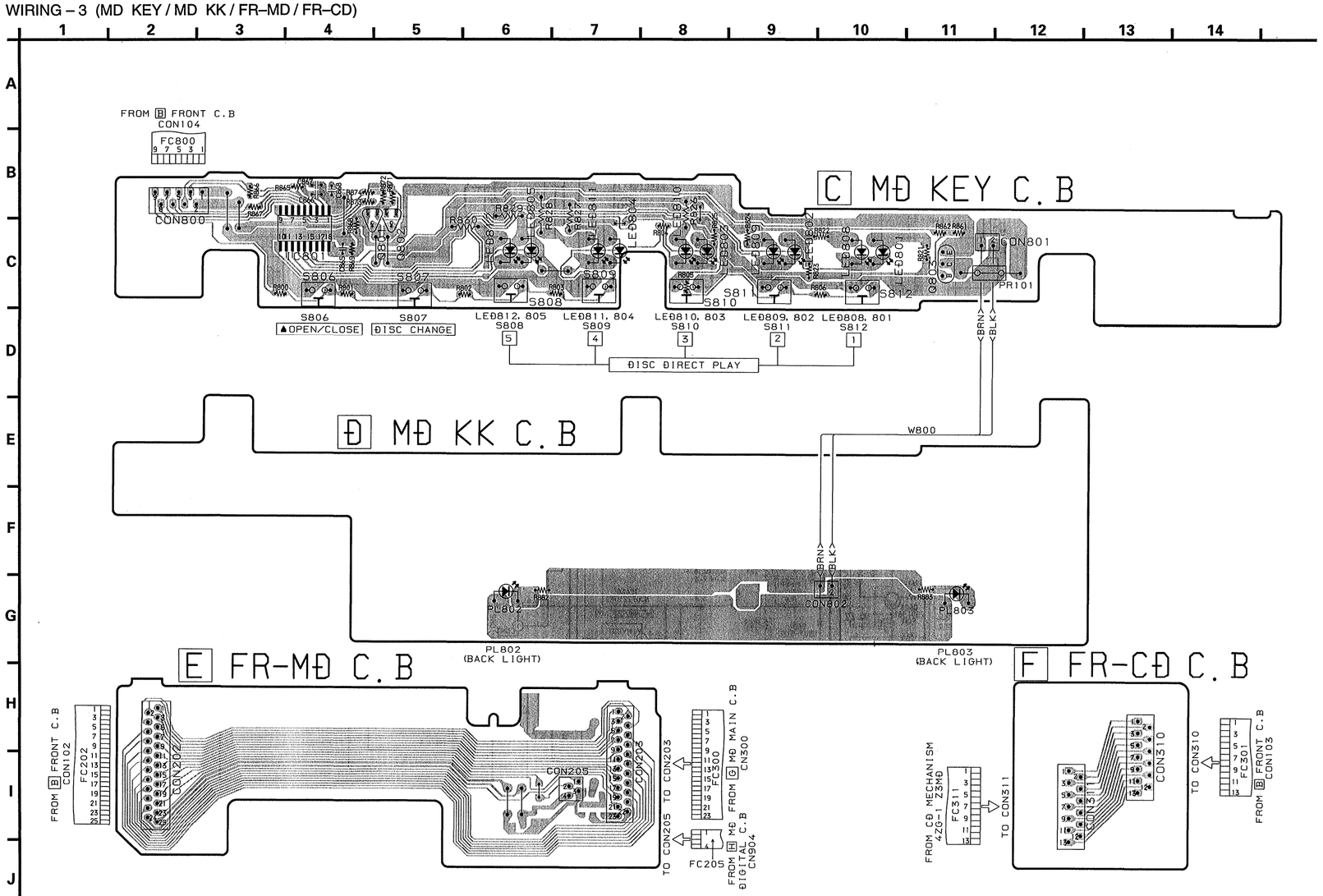
IC, M5291FP

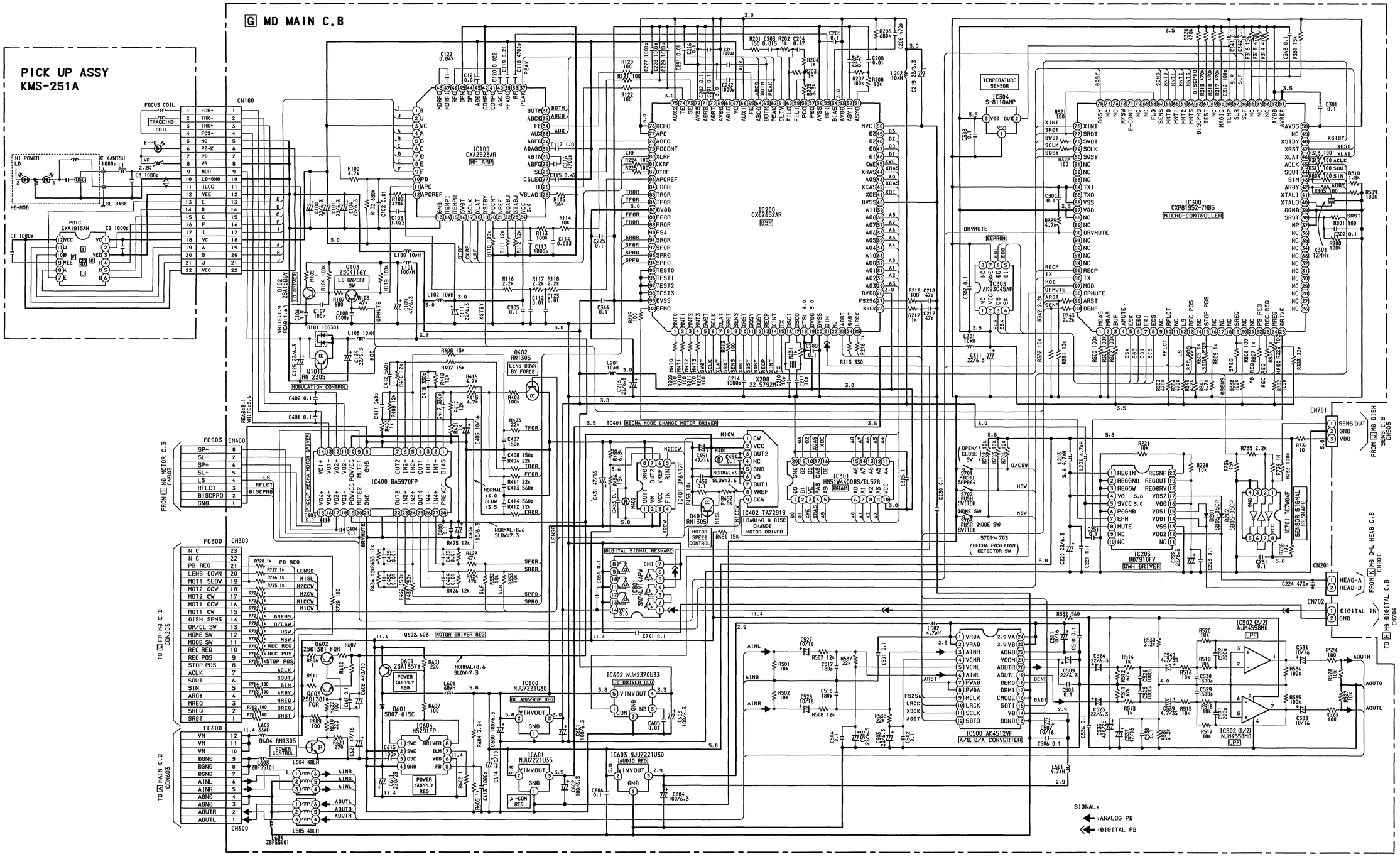


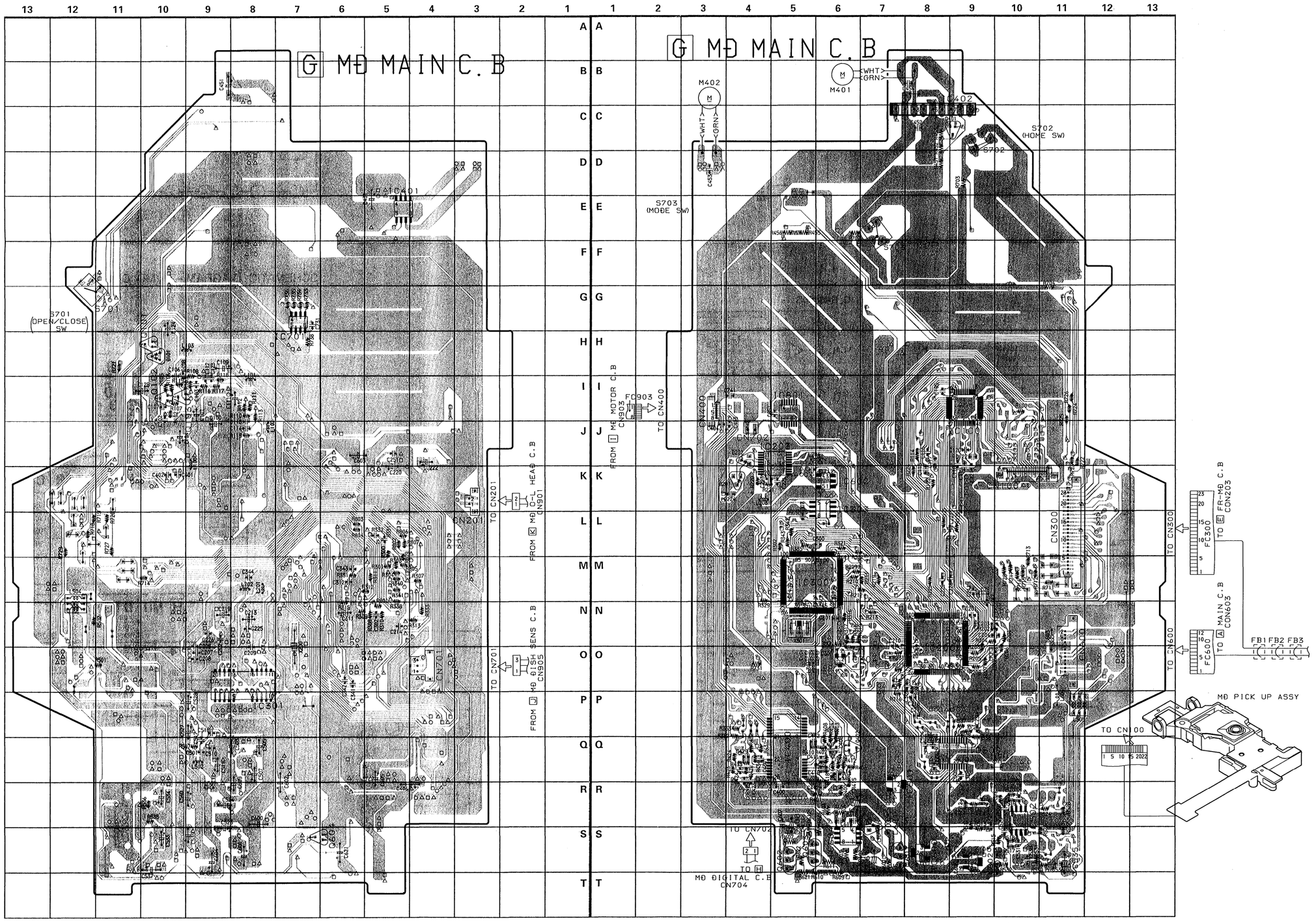
SCHEMATIC DIAGRAM – 3 (FR–MD / FR–CD)



WIRING – 3 (MD KEY / MD KK / FR–MD / FR–CD)

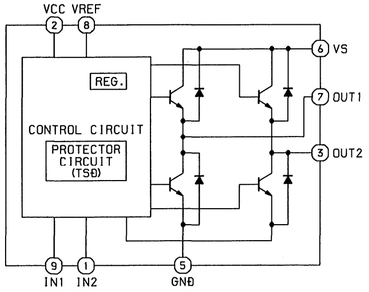



G MD MAIN C.B
PICK UP ASSY
KMS-251A
CN100
IC100 CXA2523AR RF AMP
IC200 CXD2652AR DSP
IC300 CXP85552-7NB5 MICRO-CONTROLLER
IC304 S-8110AMP TEMPERATURE SENSOR
IC303 AK93C45AF EEPROM
IC301 HM51W4400BS/BL-8/-7/-6 DRAM
IC203 BU7910FV DWH DRIVER
IC502 (1/2) NJM4558MD LPF
IC502 (2/2) NJM4558MD LPF
IC500 AK4512VF A/D, D/A CONVERTER
IC402 TA7291S LOADING & DISC CHANGE MOTOR DRIVER
IC401 [MECHA MODE CHANGE MOTOR DRIVER]
IC400 BA5970FP
IC602 NJM2370U33 LD DRIVER REG
IC603 NJU7221U30 AUDIO REG
IC600 NJU7221U30 RF AMP/DSP REG
IC601 NJU7221U35 μ-COM REG
IC604 M5291FP POWER SUPPLY REG
IC801 SN74LV1T14DCKR DIGITAL SIGNAL RESHAPE
IC701 TC7WG4F SENSOR SIGNAL RESHAPE
X200 22.5792MHz
X301 12MHz
CN400
CN600
CN701
CN201
CN702
FC903
FC300
FC600
CN903
CN203
CN604
CN905
CN901
CN904
FOCUS COIL
TRACKING COIL
F-PD
VR 2.2K
HI POWER
LD
SL BASE
MD-MOD
PBIC CXA1915AN
LS
RFLCT
DISCPRO
SENS OUT
GND
VDD
HEAD-A
HEAD-B
DIGITAL IN
SIGNAL:
:ANALOG PB
:DIGITAL PB


G MD MAIN C.B
G MD MAIN C.B
S701
(OPEN/CLOSE SW)
S703
(MODE SW)
S702
(HOME SW)
M401
M402
IC401
IC701
IC601
IC300
CN201
CN701
CN702
CN400
CN300
CN600
FC903
FC300
FC600
TO CN201
FROM K MD OPTICAL HEAD C.B CN501
TO CN701
FROM J MD GISH SENS C.B CN505
FROM L MD MOTOR C.B CN903
TO CN400
TO CN702
TO H MD DIGITAL C.B CN704
TO CN300
TO CN600
TO E FR-MD C.B CON203
TO A MAIN C.B CON603
FB1 FB2 FB3
MD PICK UP ASSY
TO CN100

IC BLOCK DIAGRAM – 2

IC, TA7291S

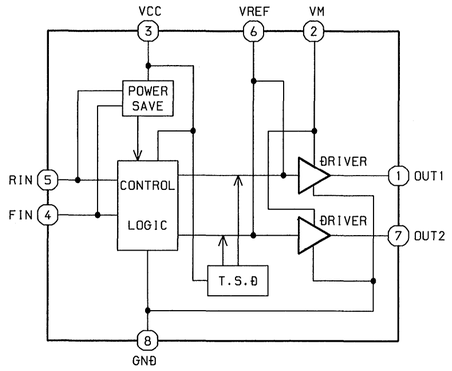


TRUTH TABLE

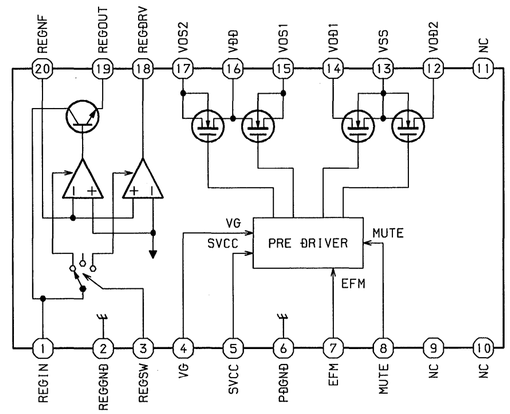
INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

∞ :HIGH IMPEDACE
INPUT IS "H" ACITVE

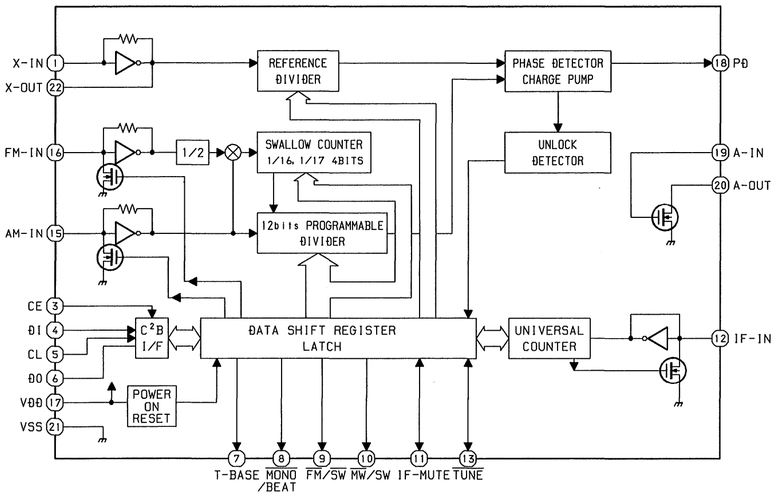
IC, BA6417F



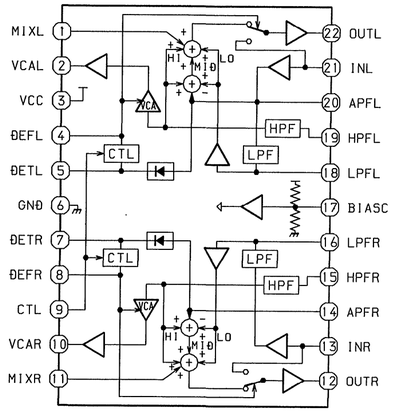
IC, BD7910FV



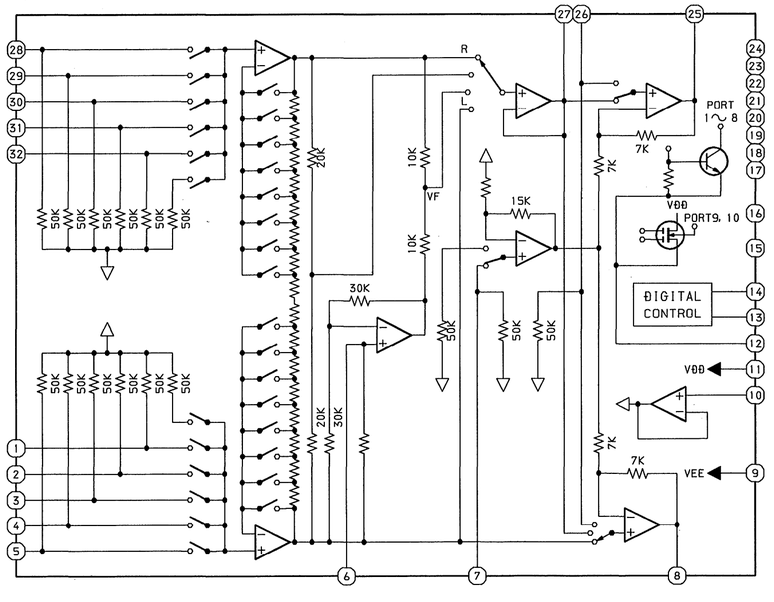
IC, LC72131D(Z)



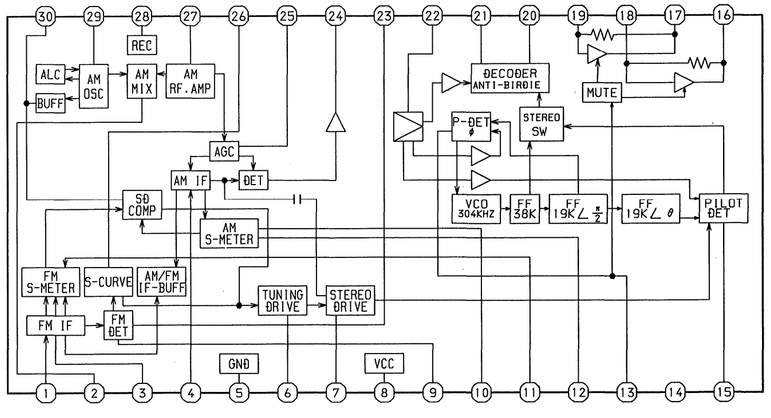
IC, BA3880S



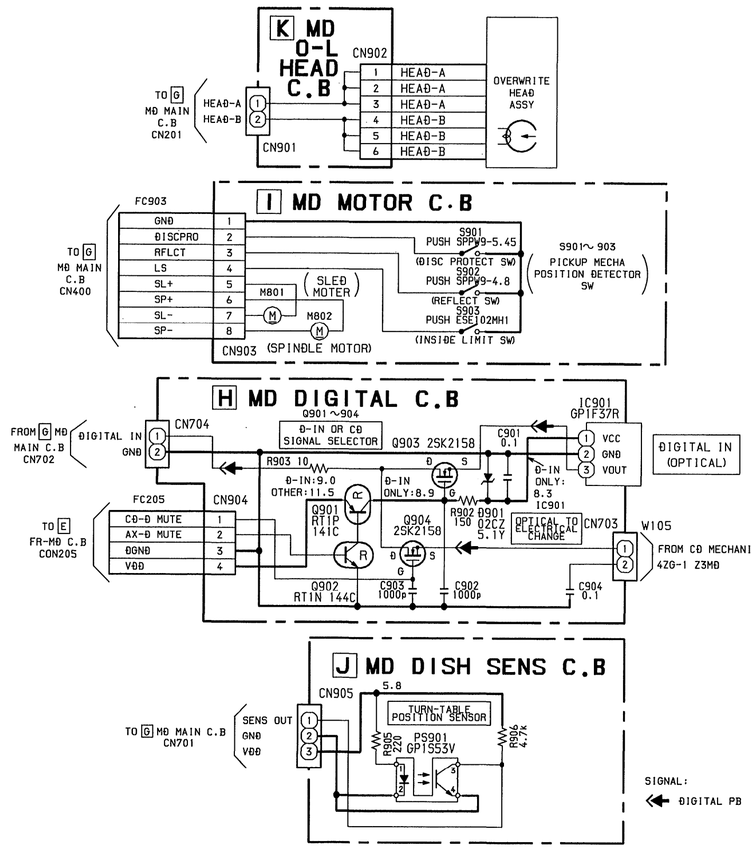
IC, BH3810FS

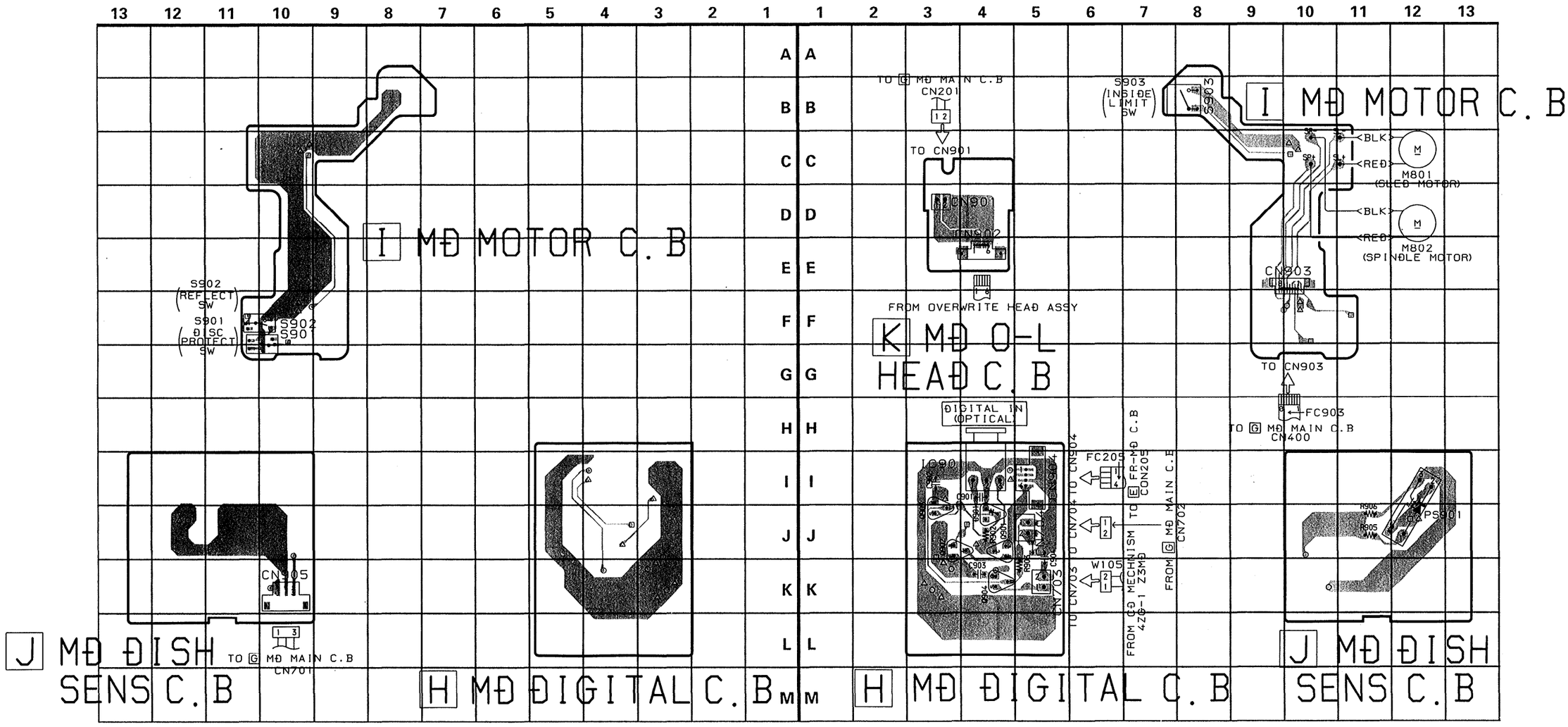


IC, LA1837

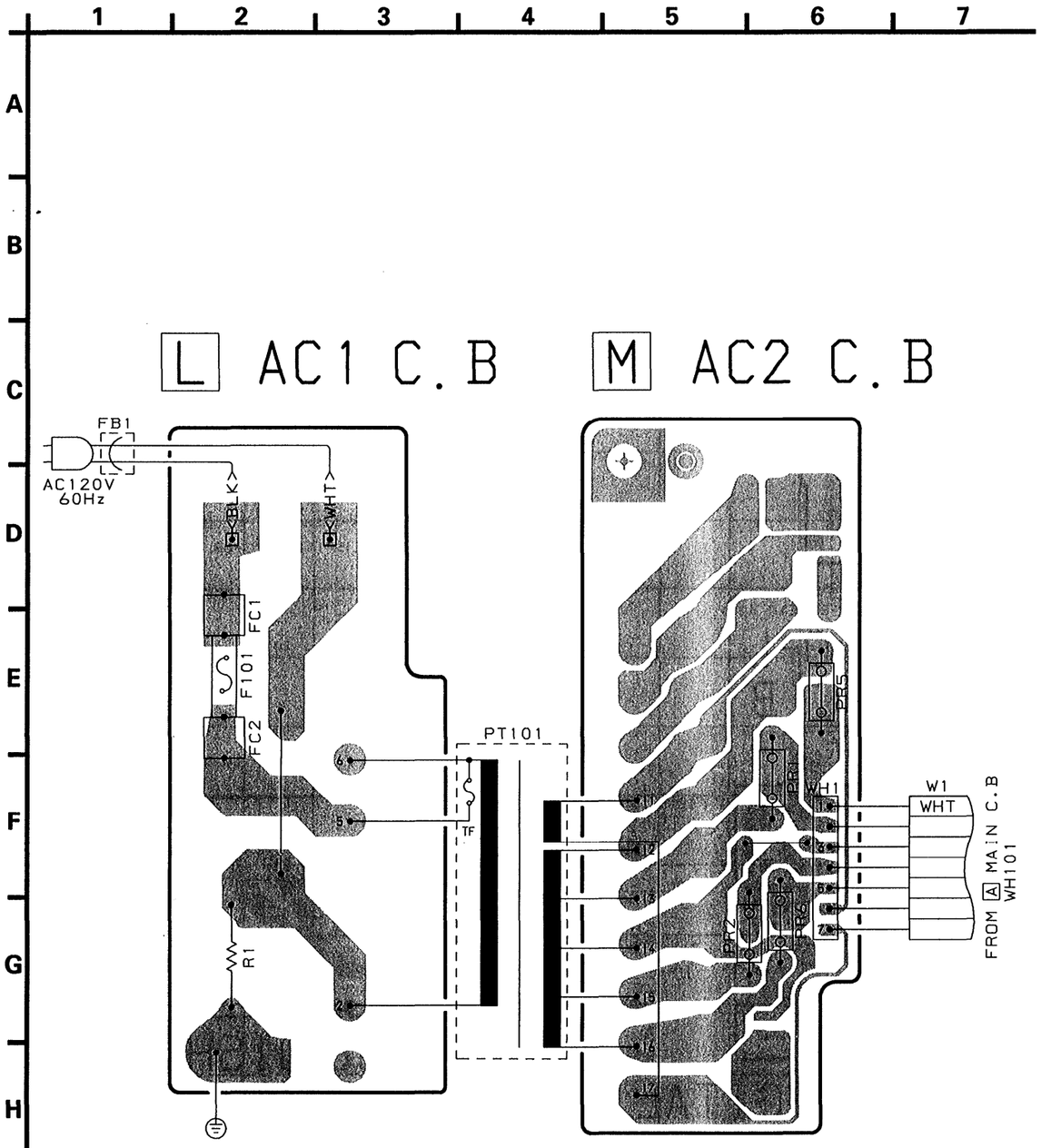


SCHEMATIC DIAGRAM – 5 (MD DIGITAL / MD MOTOR / MD DISH SENS / MD O-L HEAD)



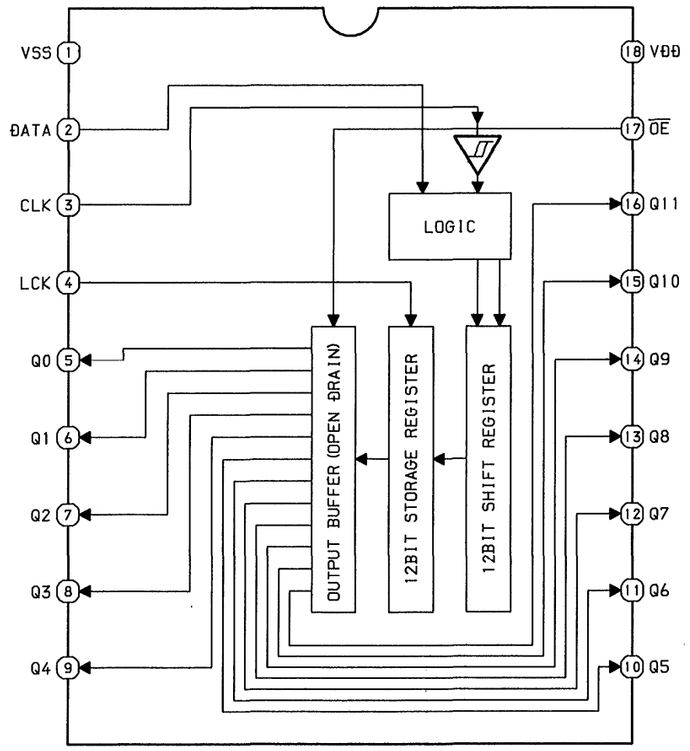

I MD MOTOR C.B
S902 (REFLECT SW)
S901 (DISC PROTECT SW)
S902
S901
TO G MD MAIN C.B CN201
TO CN901
CN901
CN902
FROM OVERWRITE HEAD ASSY
K MD O-L HEAD C.B
DIGITAL IN (OPTICAL)
IC901
FC205
TO CN704
TO CN703
W105
FROM MECHANISM TO E FR-MD C.B CON205
FROM G MD MAIN C.B CN702
S903 (INSIDE LIMIT SW)
I MD MOTOR C.B
BLK
RED
M801 (SLED MOTOR)
M802 (SPINDLE MOTOR)
CN903
TO CN903
FC903
TO G MD MAIN C.B CN400
PS901
J MD DISH SENS C.B
CN705
TO G MD MAIN C.B CN701
H MD DIGITAL C.B
H MD DIGITAL C.B
J MD DISH SENS C.B

WIRING – 6 (AC1 / AC2)

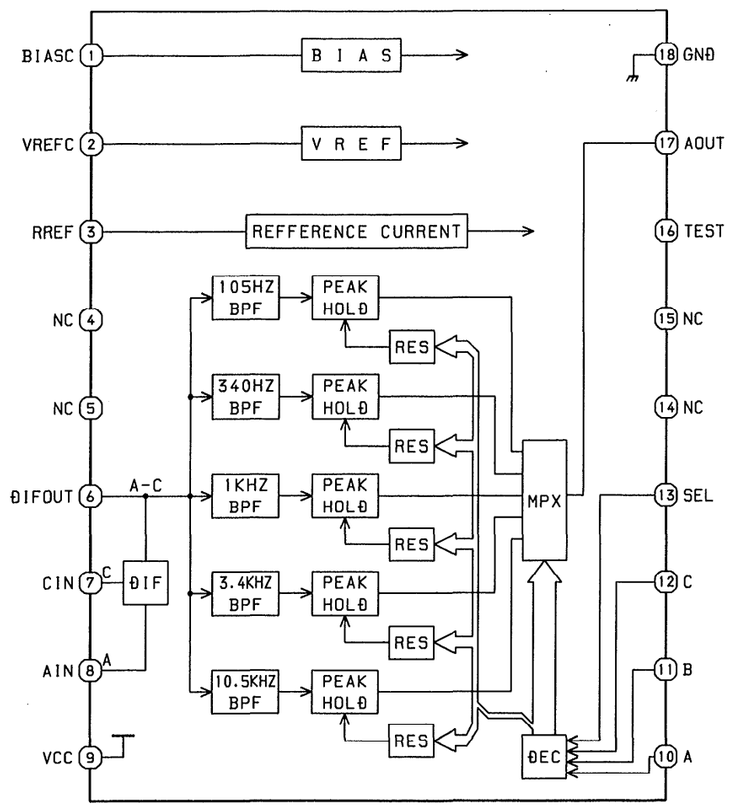


IC BLOCK DIAGRAM – 2

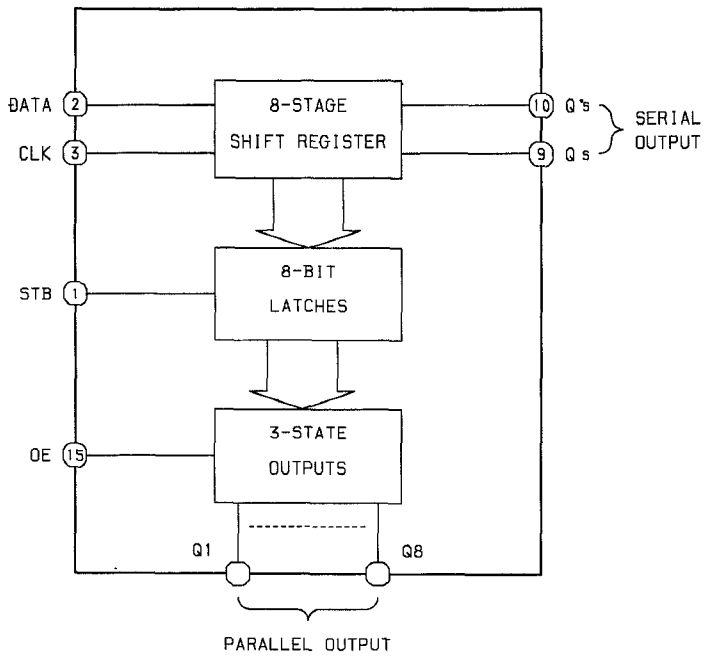
IC, BU2092F



IC, BA3835S



IC, BU4094BCF



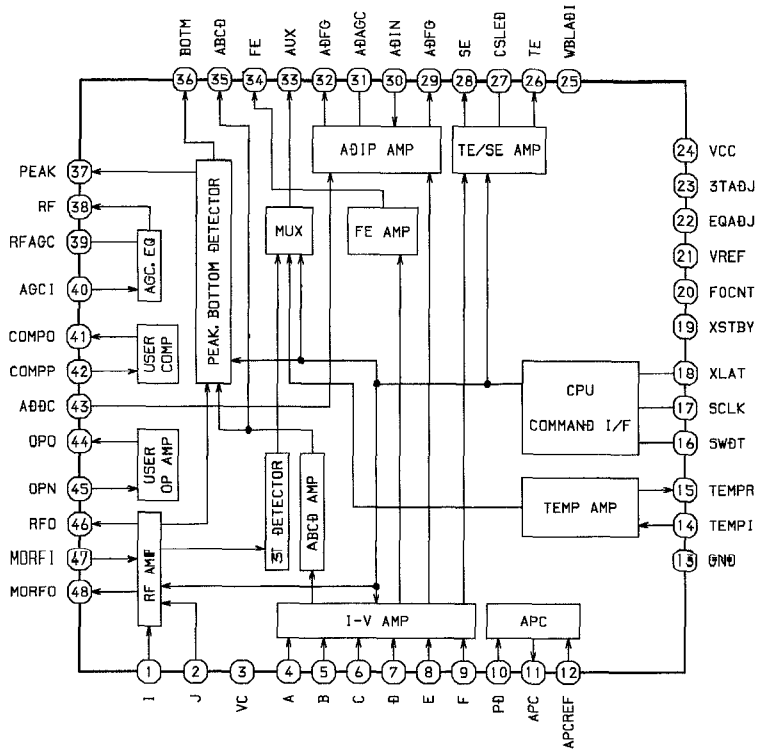
TRUTH TABLE

CLOCK	OUTPUT ENABLE	STROBE	DATA	PARALLEL OUTPUTS		SERIAL OUTPUTS	
				Q1	Qn	Qs	Q's
↑	L	X	X	Z	Z	Q7	NO Chg.
↓	L	X	X	Z	Z	No Chg.	Qs
↑	H	L	X	No Chg.	No Chg.	Q7	No Chg.
↑	H	H	L	L	Qn-1	Q7	No Chg.
↑	H	H	H	H	Qn-1	Q7	No Chg.
↓	H	X	X	No Chg.	No Chg.	No Chg.	Qs

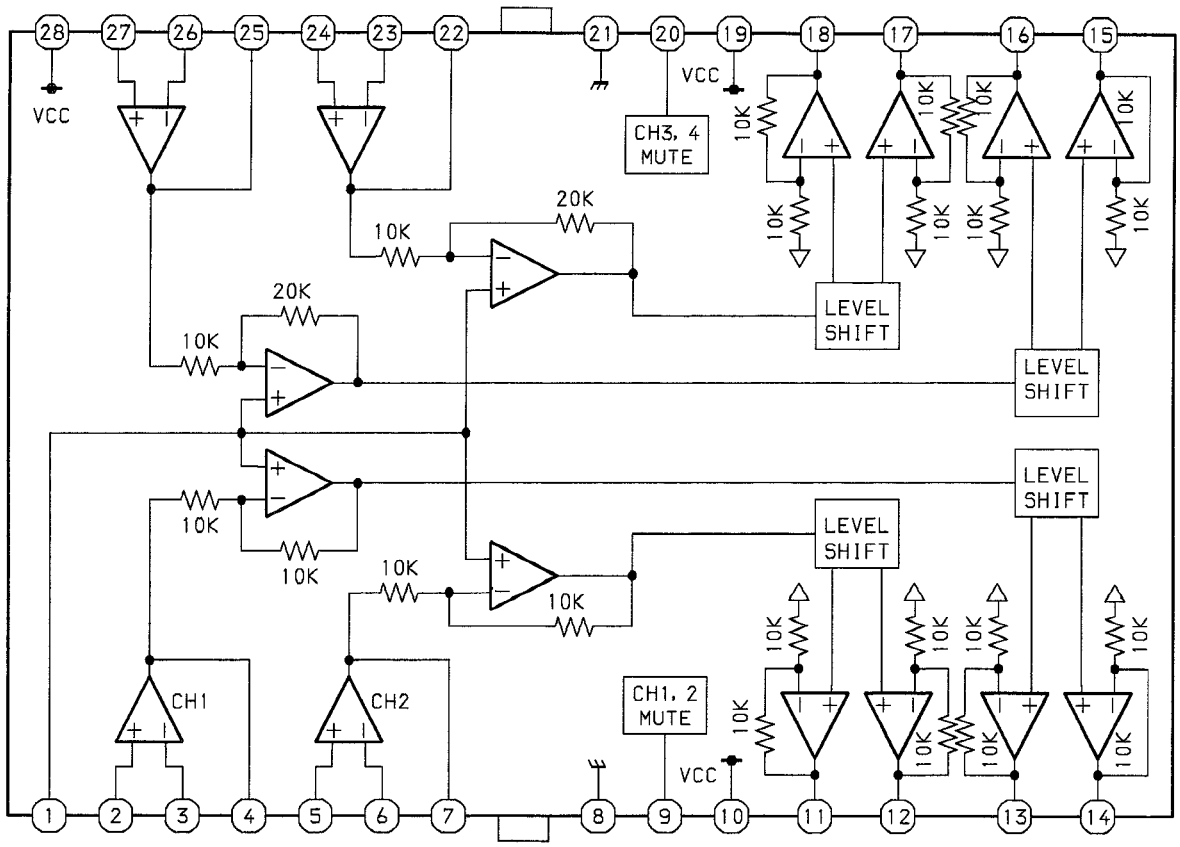
Z=High Impedance

X=Don't Care

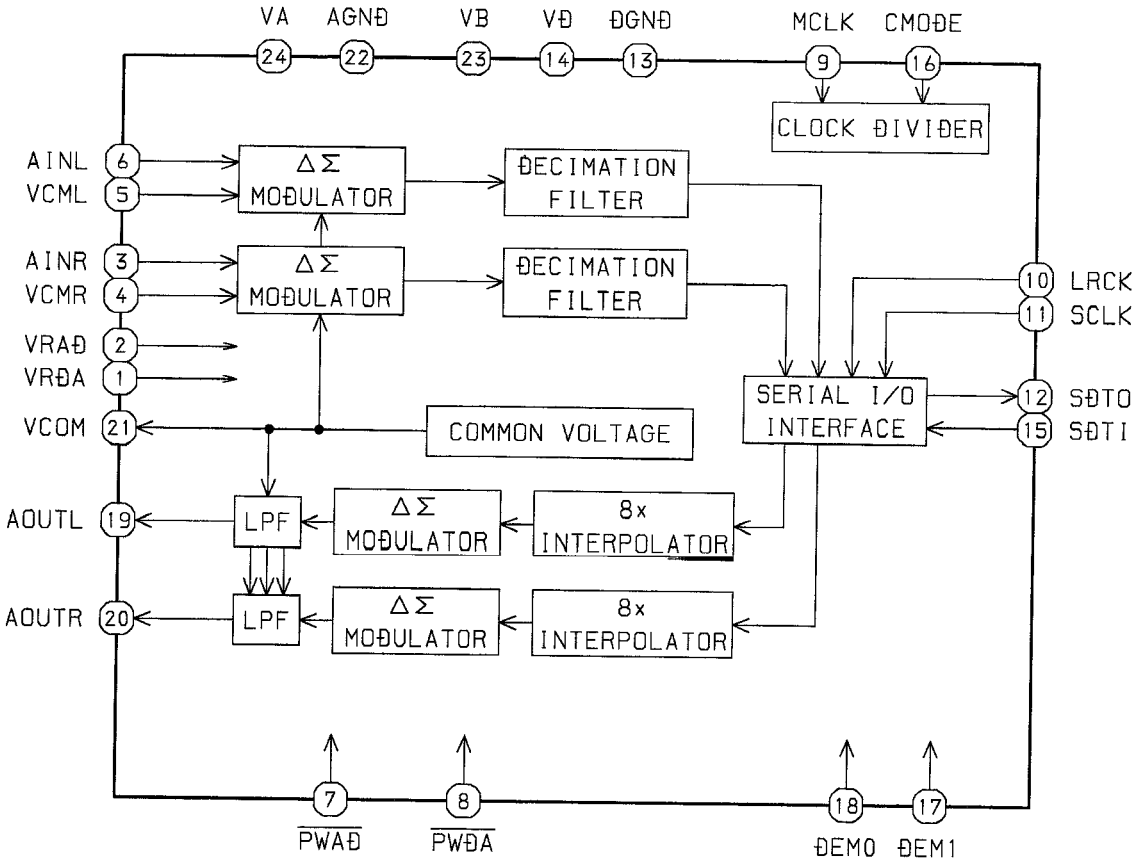
IC, CXA2523AR



IC, BA5970FP



IC, AK4512VF



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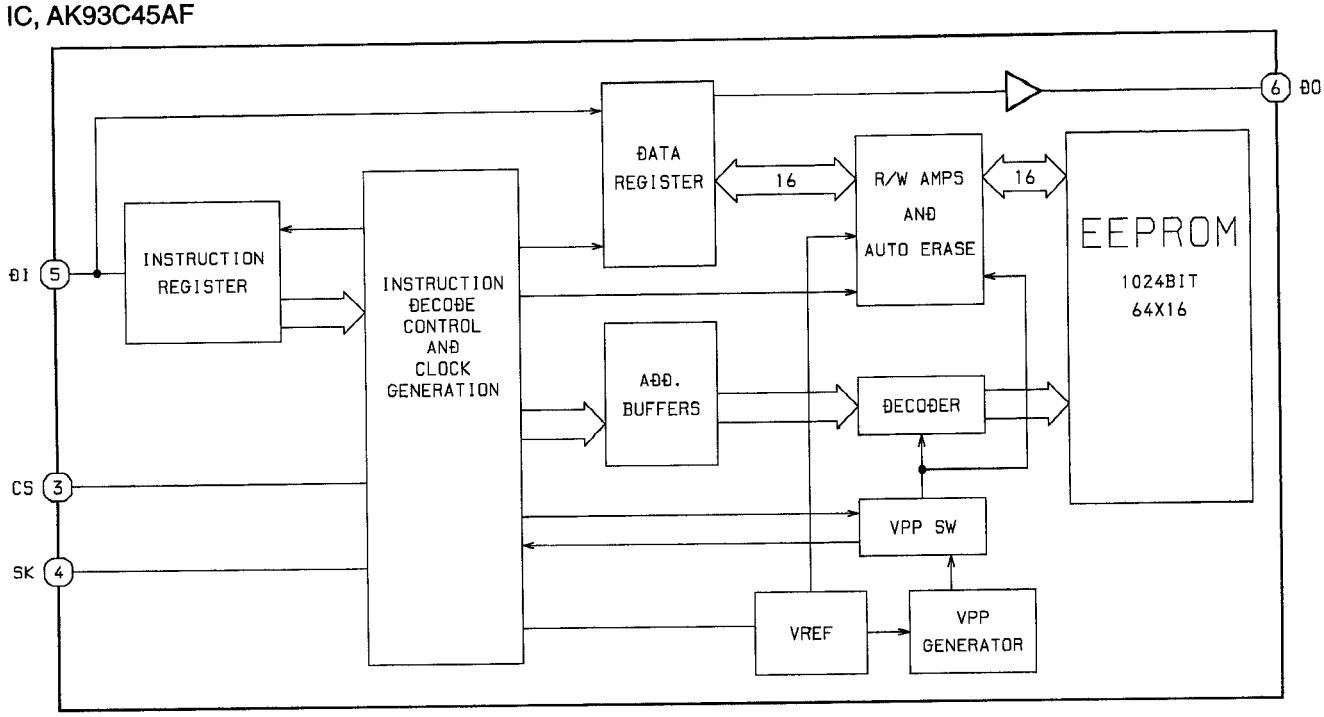
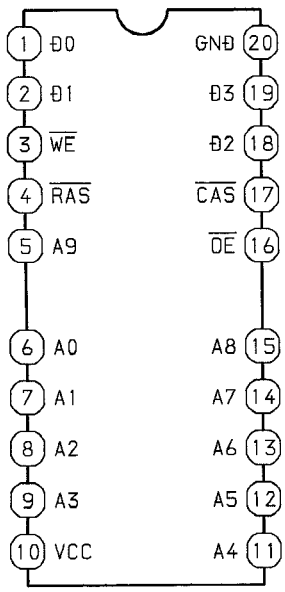
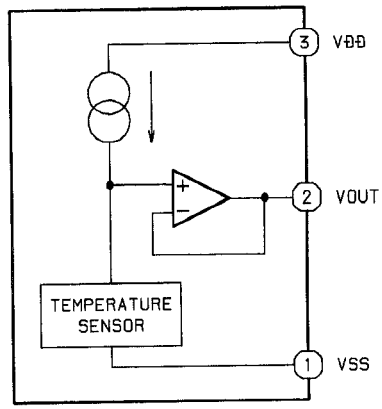


IC, HM51W4400BS



PIN NO.	SIGNAL		
	POW/ CLK	I	O
1		I/O1	
2		I/O2	
3	$\overline{WE}$		
4	$\overline{RAS}$		
5		A9	
6		A0	
7		A1	
8		A2	
9		A3	
10	VCC		
11		A4	
12		A5	
13		A6	
14		A7	
15		A8	
16	$\overline{OE}$		
17	$\overline{CAS}$		
18		I/O3	
19		I/O4	
20	GNĐ		

IC, S-8110AMP



IC DESCRIPTION

IC, LC866560W-5H42

Pin No	Pin Name	I/O	Description
1	O-CD.CLOSE	O	CD tray close output.
2	O-CD.OPEN	O	CD tray open output.
3	O-CD.LED	O	LED light output pin for CD illumination.
4	O-MD.STB	O	Strobe output pin for MD, CD direct play register (IC801).
5	O-FR.STB	O	Strobe output pin for front-shift register (IC201 and 203).
6	O-MA.STB	O	Strobe output pin for main.
7	O-DATA	O	Output front and main data.
8	O-CLK	O	Output front and main clock.
9	O-$\overline{\text{POWER}}$	O	System power supply $\overline{\text{ON}}$/OFF output pin.
10	O-MUTE	O	System mute ON/$\overline{\text{OFF}}$ output pin.
11	O-$\overline{\text{CLK.SHIFT}}$	O	Output micro-processor clock shift.
12	$\overline{\text{RESET}}$	I	$\overline{\text{Reset}}$ pin. "L" SYSTEM RESET
13	I-MD.RT-A	I	Input multi jog encoder A.
14	I-MD.RT-B	I	Input multi jog encoder B.
15	VSSI	–	Connected to GND.
16	CF1	I	Micro-processor clock input pin.
17	CF2	O	Micro-processor clock output pin.
18	VDDI	–	Connected to VDD (Backup).
19	I-$\overline{\text{HOLD}}$	I	Power-failure detection A/D input pin.
20	I-KEY-1	I	KEY-1 A/D input (*Refer to Table 1).
21	I-KEY-2	I	KEY-2 A/D input (*Refer to Table 1).
22	I-KEY-3	I	KEY-3 A/D input (*Refer to Table 1).
23	I-KEY-4	I	KEY-4 A/D input (*Refer to Table 1).
24	I-CDSW	I	CD mechanism switch input.
25	I-RE.V	I	Electrical volume encoder A/B input.
26	I-SPEANA	I	Spectrum analyzer level A/D input (*Refer to Table 2).
27	I-WRQ	I	CD WRQ input.
28	I-DISH(CD)	I	CD turntable photo sensor input.
29	I-$\overline{\text{RMC}}$	I	System remote-control input.
30	G13	O	FL grid output (13G).
31	G12	O	FL grid output (12G).
32	G11	O	FL grid output (11G).
33	G10	O	FL grid output (10G).
34	G9	O	FL grid output (9G).
35	G8	O	FL grid output (8G).
36	G7	O	FL grid output (7G).
37	G6	O	FL grid output (6G).
38	G5	O	FL grid output (5G).
39	G4	O	FL grid output (4G).
40	G3	O	FL grid output (3G).
41	G2	O	FL grid output (2G).

Pin No	Pin Name	I/O	Description
42	P36	O	FL segment output (P36).
43	P35	O	FL segment output (P35).
44	G1	O	FL grid output (1G).
45	P34	O	FL segment output.
46	VDD3	–	Connected to VD (for FL).
47	P33/SPEANA-A	O	FL segment output (P33) / Spectrum analyzer band switch output (A).
48	P32/SPEANA-B	O	FL segment output (P32) / Spectrum analyzer band switch output (B).
49	P31/SPEANA-C	O	FL segment output (P31) / Spectrum analyzer band switch output (C).
50	P30/AM.ST	O/I	FL segment output (P30) / no AM ST diode input.
51	VP	–	Connected to-VFL.
52	P29/LW	O/I	FL segment output (P29) / LW diode input.
53	P28/SW	O/I	FL segment output (P28) / SW diode input.
54	P27/FM1	O/I	FL segment output (P27) / FM1 diode input.
55	P26/RDS	O/I	FL segment output (P26) / RDS diode input.
56	P25/BBE	O/I	FL segment output (P25) / No BBE diode input.
57	P24/DSP	O/I	FL segment output (P24) / No DSP diode input.
58	P23/AM10K	O/I	FL segment output (P23) / AM10K diode input.
59	P22/OP/CL.SW	O/I	FL segment output (P22) / MD OPEN/CLOSE switch status input, SW ON: "L".
60	P21/HOME.SW	O/I	FL segment output (P21) / MD HOME SW status input, SW ON: "L".
61	P20/MODE.SW	O/I	FL segment output (P20) / MD MODE SW status input, SW ON: "L".
62	P19/REC.REQ	O/I	FL segment output (P19) / MD REC request input.
63	P18/TIME.BASE	O/I	FL segment output (P18) / Clock time base input.
64	P17/MIC	O/I	FL segment output (P17) / microphone signal input.
65	P16/PLAY	O/I	FL segment output (P16) / MD playback request input.
66	P15	O	FL segment output (P15).
67	P14	O	FL segment output (P14).
68	P13	O	FL segment output (P13).
69	P12	O	FL segment output (P12).
70	P11	O	FL segment output (P11).
71	P10	O	FL segment output (P10).
72	VDD4	–	Connected to VDD (for LF).
73	P9	O	FL segment output (P9).
74	P8	O	FL segment output (P8).
75	P7	O	FL segment output (P7).
76	P6	O	FL segment output (P6).
77	P5	O	FL segment output (P5).
78	P4	O	FL segment output (P4).
79	P3	O	FL segment output (P3).
80	P2	O	FL segment output (P2).
81	P1	O	FL segment output (P1).
82	O-K-SCAN	I	Segment input permission input.

Pin No	Pin Name	I/O	Description
83	I-STEREO/O-RDF	I/O	TUNER stereo detection input / CD RDF output.
84	I-IFC/O-SUBQ	I/O	TUNE IF count input / CD SUBQ output.
85	O-DISH FWD	O	CD turntable forward rotation output.
86	O-DISH REV	O	CD turntable reverse rotation input.
87	O-PLL-CE	O	TUNER PLL chip enable output.
88	O-CD.DATA	O	CD DATA output.
89	VSS2	–	Connected to GND.
90	VDD2	–	Connected to VDD (Backup).
91	O-CD.CE	O	CD CE output.
92	O-CD.CLK	O	CD CLK output.
93	O-$\overline{\text{ARDY}}$	O	Permit clock output to MD micro-processor (active L).
94	O-SRST	O	Reset signal output (L → H).
95	O-SOUT	O	MD SOUT output.
96	I-SIN	I	MD SIN input.
97	I-$\overline{\text{ACLK}}$	I	MD ACLK output (active L).
98	I-DISH (MD)	O	MD turntable photo sensor input.
99	O-$\overline{\text{SREQ}}$	O	MD SREQ output (active L).
100	I-$\overline{\text{MREQ}}$	I	MD MREQ input (active L).

Table 1

Key1 (Pin20) AD input	Key2 (Pin21) AD input	Key3 (Pin22) AD input	Key4 (Pin23) AD input
POWER	● REC	TAPE	DISC1 (CD)
SURROUND	▮▮ SET	TUNER/BAND	DISC2 (CD)
GEQ	■ CLEAR	AUX/DIN	DISC3 (CD)
T-BASS	►PRESET	CD	DISC CHANGE (CD)
BBE	⏮ DOWN	MD	▲ OPEN/CLOSE (CD)
EDIT (MD)	⏭ UP	CD ►1MD	▲ OPEN/CLOSE (MD)
ENTER	ECHO	3CD ►3MD	DISC CHANGE (MD)
DISPLAY	MIC (VOL)	CD SINGLE ►1MD	MD5
MODE (MD)	–	D-IN ►MD	MD4
KARAOKE	–	–	MD3
DEMO	–	–	MD2
–	–	–	MD1

Table 2

Spectrum analyzer display level		
Light on up to level 6	(0dB)	5.60V
Light on up to level 5	(–4.5dB)	3.34V
Light on up to level 4	(–9.0dB)	1.99V
Light on up to level 3	(–13.5dB)	1.18V
Light on up to level 2	(–18.0dB)	0.71V
Light on up to level 1	(–22.5dB)	0.42V
Light off	(–27.0dB)	0.25V

IC, CXA2523AR

Pin No	Pin Name	I/O	Description
1	I	I	Input "I" RF signal converted to I-V.
2	J	I	Input "J" RF signal converted to I-V.
3	VC	O	Output voltage for VCC/2.
4	A	I	Input current for main beam servo signal A.
5	B	I	Input current for main beam servo signal B.
6	C	I	Input current for main beam servo signal C.
7	D	I	Inpul current for main beam servo signal D.
8	E	I	Input current for side beam servo signal E.
9	F	I	Input current for side beam servo signal F.
10	PD	I	Input beam spectrum monitor signal.
11	APC	O	Output laser APC.
12	APCREF	I	Input reference voltage for laser power setting.
13	GND	–	GND.
14	TEMPI	I	Temperature sensor connection pin. (Not-used.)
15	TEMPR	I	Temperature sensor connection pin. Output reference voltage. (Not used.)
16	SWDT	I	Input micro-processor serial interface data.
17	SCLK	I	Input micro-processor serial interface shift clock.
18	XLAT	I	Input micro-processor serial interface latch. "L": Latch.
19	XSTBY	I	Standby setting pin. "H": Normal mode, "L": Standby.
20	FOCNT	I	Internal current setting pin.
21	VREF	O	Output reference voltage. (Not used.)
22	EQADJ	I/O	EQ central frequency setting pin.
23	3TADJ	I/O	BPF3T central frequency setting pin.
24	VCC	–	Power supply pin.
25	WBLADJ	I/O	BPF22 central frequency setting pin.
26	TE	O	Output tracking error signal.
27	CSLED	–	LPF capacitor connection pin for SLED error signal.
28	SE	O	Output SLED error signal.
29	ADFG	O	Output ADIP FM signal.
30	ADIN	I	Input ADIP signal comparator.
31	ADAGC	–	ADIPAGC capacitor connection pin.
32	ADFG	O	Output ADIP2 binary data signal.
33	AUX	O	I3 output / output temperature signal. Switch by serial command.
34	FE	O	Output focus error.
35	ABCD	O	Output beam spectrum signal for main-beam servo detector.
36	BOTM	O	Output bottom hold signal for RF / ABCD.
37	PEAK	O	Output beak hold signal for RF / ABCD.
38	RF	O	RF equalize output pin.
39	RFAGC	–	RFAGC capacitor connection pin.
40	AGCI	I	RFAGC input pin.
41	COMPO	O	User comparator output pin. (Not used.)

Pin No	Pin Name	I/O	Description
42	COMPP	I	User comparator non-inverted input pin.
43	ADDC	I/O	Capacitor connection pin for ADIP amplifier on return circuit.
44	OPO	O	Output pin for user operational amplifier. (Not used.)
45	OPN	I	Non-inverted input pin for user operational amplifier.
46	RFO	O	RF amplifier output pin. Check point of eye pattern.
47	MORFI	I	Input pin where Groove RF signal is AC coupled.
48	MORFO	O	Output in for Groove RF signal.

IC, CXD2652AR

Pin No	Pin Name	I/O	Description
1	MNTO	O	Monitor output pin.
2	MNTI	O	Monitor output pin.
3	MNT2	O	Monitor output pin.
4	MNT3	O	Monitor output pin.
5	SWDT	I	Data input pin for micro-processor serial interface.
6	SCLK	I	Shift clock input pin for micro-processor serial interface.
7	XLAT	I	Latch input pin for micro-processor serial interface. Shut down: latch.
8	SRDT	O	Data output pin for micro-processor serial interface.
9	SENS	O	Output internal status according to micro-processor serial interface address.
10	XRST	I	Reset input pin. "L": Reset.
11	SQSY	O	Disc sub-code Q synchronize / ADIP synchronize output.
12	DQSY	O	When source of the digital in is set to CD or MD, output sub-code Q synchronize of UbitCD or MD format.
13	RECP	I	Laser power switching input pin. "H": Record power, "L": Playback power.
14	XINT	O	Intrusion demand output pin. "L" setting when intrusion status is generated.
15	TX	I	Record data output enable signal input pin. "H": Enable.
16	OSCI	I	Crystal oscillator circuit input pin.
17	OSCO	O	Crystal oscillator circuit output pin. (OSCI inverted output)
18	XTSL	I	Switch input frequency of OSCI pin. (Connected to DVDD) "H": 512Fs (22.5792MHz), "L": 1024Fs (45.158MHz).
19	DVDD	–	Digital power supply.
20	DVSS	–	Digital GND.
21	DIN	I	Input digital audio interface signal.
22	NC	–	Not in used.
23	ADDT	I	Analog record input pin. (Connect external A/D converter output)
24	DADT	O	REC monitor output pin / output decode audio data.
25	LRCK	O	Output LRCK (44.1kHz) to external audio block.
26	XBCK	O	Output bit clock (2.8224MHz) to external audio block.

Pin No	Pin Name	I/O	Description
27	FS256	O	Output 256Fs (11.2896MHz).
28	DVDD	–	Digital power supply.
29	A03	O	Output address for external DRAM.
30	A02	O	Output address for external DRAM.
31	A01	O	Output address for external DRAM.
32	A00	O	Output address for external DRAM.
33	A10	O	Output address for external DRAM. (Not used.)
34	A04	O	Output address for external DRAM.
35	A05	O	Output address for external DRAM.
36	A06	O	Output address for external DRAM.
37	A07	O	Output address for external DRAM.
38	A08	O	Output address for external DRAM.
39	A11	O	Output address for external DRAM. (Not used.)
40	DVSS	–	Digital GND.
41	XOE	O	Output enable pin for external DRAM.
42	XCAS	O	Output $\overline{CAS}$ for external DRAM.
43	A09	O	Output address for external DRAM.
44	XRAS	O	Output $\overline{RAS}$ for external DRAM.
45	XWE	O	Write enable for external DRAM.
46	D1	I/O	Data pass for external DRAM.
47	D0	I/O	Data pass for external DRAM.
48	D2	I/O	Data pass for external DRAM.
49	D3	I/O	Data pass for external DRAM.
50	MVCI	I	Clock input pin for external VCO (784fs).
51	ASYO	O	Full swing output pin for playback EFM ("L"=Vss, "H"=V_{DD}).
52	ASYI	I	Input comparator slice voltage for playback EFM.
53	AVDD	–	Analog GND.
54	BIAS	I	Input comparator bias current for playback EFM.
55	RFI	I	Input RF signal for playback EFM.
56	AVSS	–	Analog GND.
57	PDO	O	Output phase comparison for analog PLL of EFM decoder.
58	PCO	O	Output phase comparison for master PLL of playback digital PLL and for record EFM PLL.
59	FILI	I	Input filter for master PLL of playback digital PLL and for record EFM PLL.
60	FILO	O	Output filter for master PLL of playback digital PLL and for record EFM PLL.
61	CLTV	I	Input internal VCO control voltage for master PLL of playback digital PLL and for record EFM PLL.
62	PEAK	I	Input peak hold signal for beam spectrum.
63	BOTM	I	Input bottom hold signal for beam spectrum.
64	ABCD	I	Input beam spectrum signal.
65	FE	I	Input focus error signal.

Pin No	Pin Name	I/O	Description
66	AUX1	I	Backup input 1.
67	VC	I	Input midpoint voltage.
68	ADIO	O	Monitor output pin for A/D converter input signal. (Not used.)
69	AVDD	–	Analog power supply.
70	ADRT	I	Input maximum voltage of A/D converter operation range.
71	ADRB	I	Input minimum voltage of A/D converter operation range.
72	AVSS	–	Analog GND.
73	SE	I	Input sled error signal.
74	TE	I	Input tracking error signal.
75	AUX2	I	Backup input 2. Connected to AVDD.
76	DCHG	I	Connected to the power supply of low impedance. (Connected to AVDD)
77	APC	I	Input error signal for laser digital APC. (Connected to AVDD)
78	ADFG	I	Input ADIP2 binary data FM signal (22.051kHz ± 1kHz).
79	FOCNT	O	Current setting output pin for CXA2523AR.
80	XLRF	O	Latch output pin for CXA2523AR control. Shut down: latch.
81	CKRF	O	Shift clock output pin for CXA2523AR control.
82	DTRF	O	Data output pin for CXA2523AR control.
83	APCREF	O	Reference PWM output pin for laser APC.
84	LDDR	O	PWM output for laser digital APC. (Not used.)
85	TRDR	O	Tracking servo drive PWM output (–).
86	TFDR	O	Tracking servo drive PWM output (+).
87	DVDD	–	Digital power supply.
88	FFDR	O	Focus servo drive PWM output (+).
89	FRDR	O	Focus servo drive PWM output (–).
90	FS4	O	Output 4Fs (176.4kHz). (Not used.)
91	SRDR	O	SLED servo drive PWM output (–).
92	SFDR	O	SLED servo drive PWM output (+).
93	SPRD	O	Spindle servo drive PWM output. (PWM (–) or polar)
94	SPFD	O	Spindle servo drive PWM output. (PWM (+) or PWM absolute value)
95	TESTO	I	Test pin. Connected to GND.
96	TEST1	I	Test pin. Connected to GND.
97	TEST2	I	Test pin. Connected to GND.
98	TEST3	I	Test pin. Connected to GND.
99	DVSS	–	Digital GND.
100	EFMO	O	Output "L" at playback, EFM (encode data) at recording.

IC, CXP81952-7NB-5

Pin No	Pin Name	I/O	Description
1	MCAS	–	Not used (PULL DOWN).
2	MRAS	–	Not used (PULL DOWN).
3	BUP	–	Not used (PULL UP).
4	AMUTE	O	Output AUDIO MUTE signal. (Not used.)
5	ESK	O	Serial clock output pin for EEPROM interface.
6	EDO	O	Serial data output pin for EEPROM interface.
7	EDI	I	Serial data input pin for EEPROM interface.
8	ECS	O	Output EEPROM chip select signal.
9	NC	–	Not used.
10	RFLCT	I	Input terminal for DISC reflection rate detection SW.
11	NC	–	Not used.
12	LS	I	Input pin for pickup internal circumference detection SW.
13	REC POS	I	Input mechanism REC POSITION signal.
14	NC	–	Not used.
15	STOP POS	I	Input mechanism REC POSITION signal.
16	NC	–	Not used.
17	NC	–	Not used.
18	NC	–	Not used.
19	SREQ	I	Input system computer send request signal for system computer interface.
20	NC	–	Not used.
21	NC	–	Not used.
22	PB REQ	O	Output PLAY BACK request signal.
23	REC REQ	O	Output REC request signal.
24	MREQ	O	Output MD micro-processor send request signal for system computer interface.
25	DRIVE	O	Output EFM driver ON/OFF signal.
26	NC	–	Not used.
27	NC	–	Not used.
28	NC	–	Not used.
29	NC	–	Not used.
30	NC	–	Not used.
31	NC	–	Not used.
32	NC	–	Not used.
33	NC	–	Not used.
34	NC	–	Not used.
35	NC	–	Not used.
36	NC	–	Not used.
37	MP	–	Connected to VSS.
38	SRST	I	Input MD micro-processor reset signal.
39	DGND	–	Connected to VSS.
40	XTALO	O	Connection pin 1 to crystal oscillator for system clock.
41	XTALI	I	Connection pin 2 to crystal oscillator for system clock.

Pin No	Pin Name	I/O	Description
42	ARDY	I	Input READY signal for system computer interface.
43	SIN	I	Input serial data for system computer interface.
44	SOUT	O	Output serial data for system computer interface.
45	ACLK	O	Output serial clock for system computer interface.
46	XLAT	O	Output latch signal for CXD2652AR interface.
47	XRST	O	Output reset signal for CXD2652AR.
48	XSTBY	O	Output standby signal for CXA2523AR.
49	NC	–	Not used.
50	AVSS	–	Connected to VSS.
51	AVREF	–	Connected to VDD.
52	AVDD	–	Connected to VDD.
53	NC	–	Not used (PULL UP).
54	NC	–	Not used (PULL UP).
55	NC	–	Not used (PULL UP).
56	SLF	–	Not used (PULL UP).
57	SRF	–	Not used (PULL UP).
58	TEMP	–	Not used (PULL UP).
59	MAGIC	–	Not used (PULL UP).
60	NC	–	Not used (PULL UP).
61	TEST	–	Not used (PULL UP).
62	DISCPRO	I	Input pin for prevention of DISC error erase SW.
63	MINT3	I	Monitor signal input pin 3 for CXD2652AR.
64	MINT2	I	Monitor signal input pin 2 for CXD2652AR.
65	MINT1	I	Monitor signal input pin 1 for CXD2652AR.
66	MINT0	I	Monitor signal input pin 0 for CXD2652AR.
67	SENS	I	Input SENS signal for CXD2652AR.
68	FLG	I	Monitor FLAG included in SRDT of CXD2652AR interface.
69	NC	–	Not used.
70	NC	–	Not used.
71	P-CONT	–	Not used.
72	RFSW	–	Not used.
73	NC	–	Not used.
74	NC	–	Not used.
75	DQSY	I	Synchronize input pin for digital-in SUB-Q.
76	XINT	I	Status-synchronize input pin for CXD2652AR.
77	SRDT	I	Serial data input pin for CXD2652AR interface.
78	SWDT	O	Serial data output pin for CXD2652AR interface.
79	SCLK	O	Serial clock output pin for CXD2652AR interface.
80	SQSY	I	SUB-Q, ADIP sync input.
81	NC	–	Not used.
82	NC	–	Not used.

Pin No	Pin Name	I/O	Description
83	NC	–	Not used.
84	TXI	–	Connected to VSS.
85	TXO	–	Open (Not used).
86	VSS	–	Connected to VSS.
87	VDD	–	Connected to VDD.
88	NC	–	Connected to VDD.
89	NC	–	Not used.
90	DRVMUTE	O	Output MUTE signal for BA5970FP.
91	NC	–	Not used.
92	NC	–	Not used.
93	NC	–	Not used.
94	NC	–	Not used.
95	RECP	O	Laser power switch signal output pin.
96	TX	O	Output permission signal of record data output.
97	MOD	O	Output ON/OFF signal for high frequency modulation circuit.
98	OPMUTE	O	Laser MUTE signal output pin.
99	ARST	O	AK4512 reset signal output pin.
100	DENF	O	Demphasis ON/OFF signal output pin.

IC, LC72131D (Z)

<table>
<tr><th>Pin No</th><th>Pin Name</th><th>I/O</th><th>Description</th></tr>
<tr><td>1</td><td>X-IN</td><td rowspan="2">I/O</td><td rowspan="2">Oscillator (4.5MHz) is connected to both sides of pin.</td></tr>
<tr><td>22</td><td>X-OUT</td></tr>
<tr><td>2</td><td>NC</td><td>–</td><td>Not used.</td></tr>
<tr><td>3</td><td>CE</td><td>I</td><td>Activate IC. "H": Active.</td></tr>
<tr><td>4</td><td>DI</td><td>I</td><td>Input digital data from CPU (LC866560W) when key is operated.</td></tr>
<tr><td>5</td><td>CL</td><td>I</td><td>Transfer clock signal to data (DATA).</td></tr>
<tr><td>6</td><td>DO</td><td>O</td><td>Output digital data to CPU (LC866560W).</td></tr>
<tr><td>7</td><td>T-BASE</td><td>O</td><td>Output reference clock signal (8Hz) for clock time.</td></tr>
<tr><td>8</td><td>$\overline{\text{MONO/BEAT}}$</td><td>O</td><td>Output "H" at MONO/BEAT SW.</td></tr>
<tr><td>9</td><td>$\overline{\text{FM/SW}}$</td><td>O</td><td>Output "L" or "H" as follows:
<table>
<tr><th colspan="2">2 BAND</th><th colspan="3">3 BAND</th><th colspan="3">3 BAND</th></tr>
<tr><th>AM</th><th>FM</th><th>LW</th><th>MW</th><th>FM</th><th>MW</th><th>SW</th><th>FM</th></tr>
<tr><td>H</td><td>L</td><td>H</td><td>H</td><td>L</td><td>H</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>10</td><td>$\overline{\text{MW/SW}}$</td><td>O</td><td>Not used.</td></tr>
<tr><td>11</td><td>IF-MUTE</td><td>O</td><td>Control internal counter.</td></tr>
<tr><td>12</td><td>$\overline{\text{IF-IN}}$</td><td>I</td><td>Input general purpose counter.</td></tr>
<tr><td>13</td><td>TUNE</td><td>I</td><td>Receive "L" when tuned.</td></tr>
<tr><td>14</td><td>NC</td><td>–</td><td>Not used.</td></tr>
<tr><td>15</td><td>AM-IN</td><td>I</td><td>Receive AM local oscillation frequency signal.</td></tr>
<tr><td>16</td><td>FM-IN</td><td>I</td><td>Receive FM local oscillation frequency signal.</td></tr>
<tr><td>17</td><td>VDD</td><td>–</td><td>Supply power to IC (+5V).</td></tr>
<tr><td>18</td><td>PD</td><td>O</td><td>Output PLL charge pump.</td></tr>
<tr><td>19</td><td>A-IN</td><td>I</td><td rowspan="2">MOS transistor for PLL low phase filter.</td></tr>
<tr><td>20</td><td>A-OUT</td><td>O</td></tr>
<tr><td>21</td><td>VSS</td><td>–</td><td>Connected to GND.</td></tr>
</table>

CD TEST MODE

1. How to Activate CD Test Mode

Insert the AC plug while pressing the CD button."CD TEST" message appears on FL display and the test mode will be activated.

2. How to Cancel CD Test Mode

Either one of the following operations will cancel the CD test mode.

- Press any function button (Except CD function button).
- Press the power switch button.
- Disconnect the AC plug.

3. CD Test Mode functions

When test mode is activated, the following mode functions can be used by pressing the operation keys.

MODE	Function Button	FL display	Operation	Contents
Start mode (Sled mode)	Activate	CD TEST	· TEST MODE is activated	· CD Test Mode
	⏮ ⏭ button		· Pickup moves to outermost track · Pickup moves to innermost track * Note 1 (Normal operation during CD PLAY)	· SLED SERVO · Check SLED mechanism operation
Search mode	■ button	CD	· LASER DIODE illuminated all the time (CD block power ON) · Continual focus search *Note 2 (The pickup lenses repeat full-swinging) · Spindle motor continual kick rotation	· Check APC circuit · Laser current measurement FOCUS SERVO · Check focus search waveform · Check focus error waveform (FOK/FZC are not monitored in the search mode.)
Play mode	▶ button	CD 1 Tr	· Normal playback · Focus search is continued if TOC cannot be read *Note 2 · Spindle motor continual kick rotation	· FOCUS SERVO/TRACKING SERVO · CLV SERVO/SLED SERVO · Check FOC(DRF)
Traverse mode	⏸ button	CD 1 Tr	· Tracking servo OFF/ON · OFF/ON is repeated by pressing ⏸ button each time *Note 3	· TRACKING SERVO OFF · Check tracking balance (radial balance)

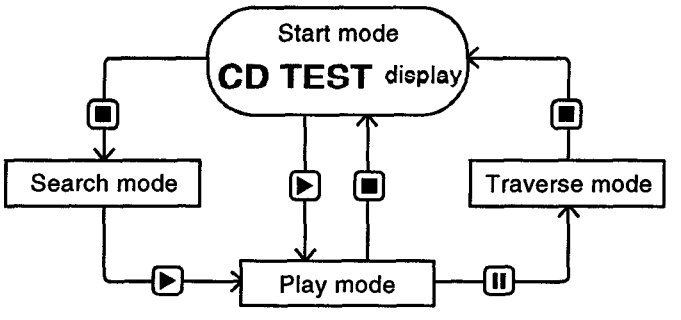
* Note 1 When pressing the ⏮ or ⏭ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ⏮ or ⏭ keys are pressed, even when the pick-up is at outermost or innermost track.
The sled opearation is not as normal and moves outermost track with ⏮ button and innermost track with ⏭ button.

* Note 2 There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC (IC400) if the focus search is operated continually for more than 10 minutes. In these case, the power supply should be switched off for 10 minutes until heat has been reduced and then re-start.

* Note 3 Do not press ⏮ or ⏭ button when "⏸" button is pressed. Playback mode may not be started after "⏸" button is released.
Press ■ button to return to start mode then pressing ⏮ or ⏭ button while "⏸" button is pressed.

4. Operation Outline

The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



MD TEST MODE

1. Starting MD TEST MODE

Insert the AC plug while pressing the [MD] (MD function) button.

Note:

1) During TEST MODE, a motion ignoring mechanical failures may be performed.
   If any wrong operation is seen, unplug immediately.
2) During TEST MODE, normal record and playback cannot be performed.

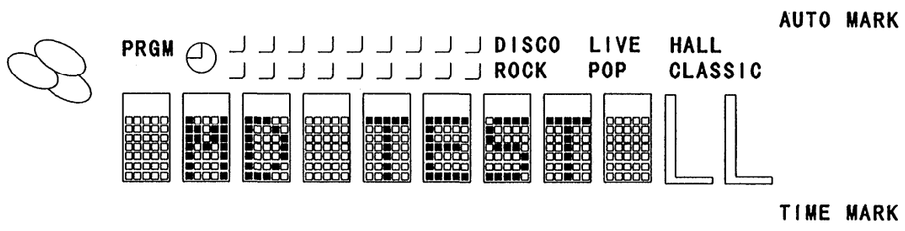
2. Exiting MD TEST MODE

1) Press [△] (OPEN/CLOSE) button to remove DISC.
2) Disconnect the AC plug.

* Be sure to follow the above steps when exiting MD TEST MODE, otherwise, POWER ON function may not be operated properly when restarted. In this case, disconnect the AC plug.

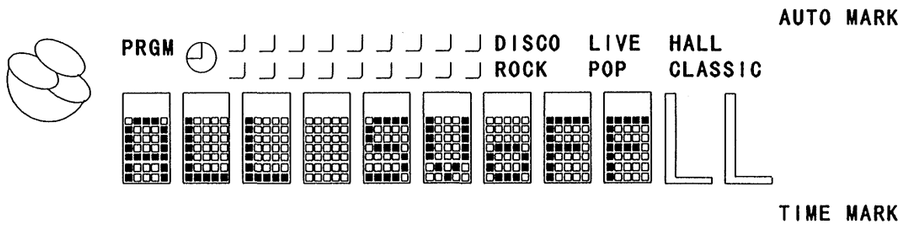
3. MD TEST MODE check

1) Display
   Approximate 5 seconds after the test mode is activated, the following diagram appears on the display and the test mode can be started.



4. Switching to servo standby mode

1) After the test mode is activated, press [□] button to switch to the servo standby mode (ALL SVoFF appears on display). Switch to other mode from this mode.



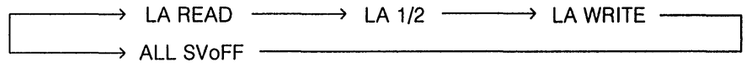
Press [□] button to return to "ALL SVoFF" from each mode.

5. Checking SLED sending function

1) Press [▷▷▷▷] button at "ALL SVoFF" to move PICK UP to the outermost track.
   The display shows the message, "T. SLED fwd".
2) Press [◁◁◁◁] button at "ALL SVoFF" to move PICK UP to the innermost track.
   The display shows the message, "T. SLED rvs" and the frame of CLASSIC goes on and off.

6. Checking laser power

1) Press (EDIT) button at "ALL SVoFF". Switch laser power by pressing the button once.
   The display shows the messages as follows:



2) After checking, press [□] button to return to "ALL SVoFF".

7. Checking loading mechanism/OWH functions

7-1. Checking loading mechanism function
   Press [△] (OPEN/CLOSE) button at "ALL SVoFF" to check loading mechanism function.

7-2. Checking OWH function
   At loading status, press [CD▷1MD] or [3CD▷3MD] button to operate OWH UP/DOWN.

[CD▷1MD] · · · · · · OWH DOWN [3CD▷3MD] · · · · · · OWH UP

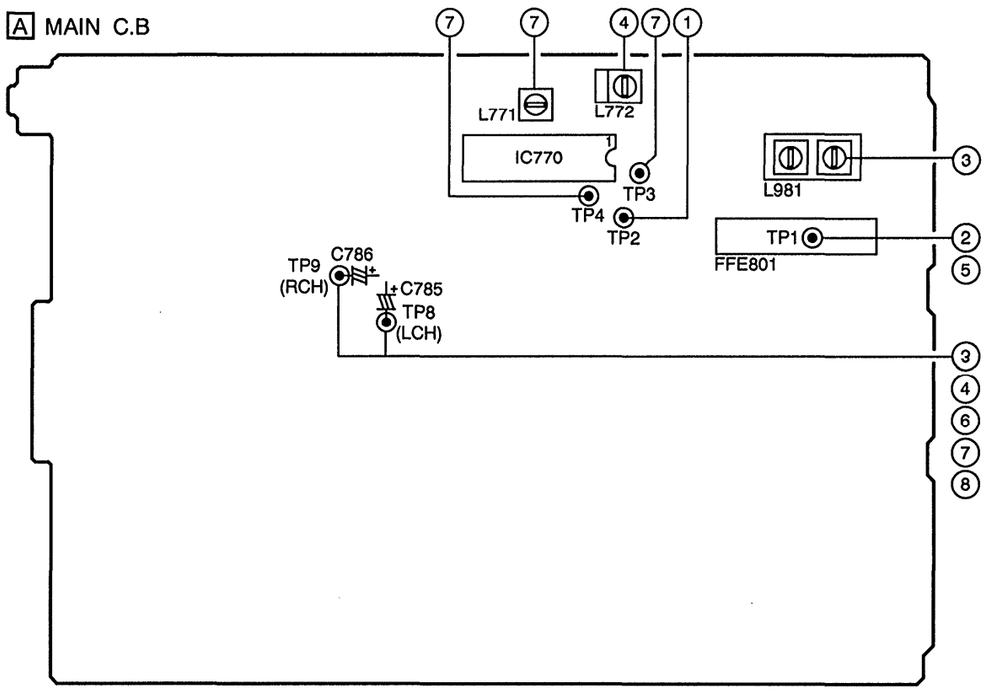
8. Checking servo function

8-1. Checking focus search / spindle kick
   1) Be sure that no DISC is placed. Press [▷] button at "ALL SVoFF" to perform search and spindle kick at the same time. At this time, the display shows the message, "FOCUS SCH".
   2) After checking, press [□] button to return to "ALL SVoFF".

8-2. Checking focus servo
   1) Place a DISC on tray 1, and press [△] button to load.
   2) Press (MODE) button, and adjust servo mode to the loaded DISC as follows.
      · MO DISC (MO) . . . . "SEL GRV" Display is "AUTO MARK".
      · PIT DISK (PIT) . . . "SEL PIT" Display is "TIME MARK".
   3) Press [▷] button.
      When focus servo functions properly, the display shows "FOCUS SCH" followed by "FOCUS ON!".
   4) After checking, press [□] button to return to "ALL SVoFF".

8-3. Checking all servos ON
   1) At focus servo ON, press (ENTER) button so that tracking and sled servos turn to ON and all servos starts operating.
      When all servos are functioning properly, the display shows the message, "ALL SV ON".
   2) After checking, press [□] button to return to "ALL SVoFF".

ADJUSTMENT – 1 <TUNER>



< TUNER SECTION >

1. Clock Frequency Check
   Settings : • Test point : TP2 (CLK)
   Method : Set to AM 1710kHz and check that the test point is 2160kHz ± 45Hz.

2. AM VT Check
   Settings : • Test point : TP1 (VT)
   Method : Set to AM 1710kHz and check that the test point is less than 7.0V. Then set to AM 530kHz and check that the test point is more than 0.6V.

3. AM Tracking Adjustment
   Settings : • Test point : TP8 (Lch), TP9 (Rch)
   • Adjustment location : L981
   Method : Set to AM 1000kHz and adjust L981 so that the test point becomes maximum.

4. AM IF Adjustment
   Settings : • Test point : TP8 (Lch), TP9 (Rch)
   • Adjustment location :
   L772 ..... 450kHz

5. FM VT Check
   Settings : • Test point : TP1 (VT)
   Method : Set to FM 108.0MHz and check that the test point is less than 7.5V. Then set to FM 87.5MHz and check that the test point is more than 1.5V.

6. FM Tracking Check
   Settings : • Test point : TP8 (Lch), TP9 (Rch)
   Method : Set to FM 98.0MHz and check that the test point is less than 9dB.

7. DC Balance / Mono Distortion Adjustment
   Settings : • Test point : TP3,TP4 (DC balance)
   TP8,TP9 (Distortion)
   • Adjustment location : L771
   • Input level : 54dB
   Method : Set to FM 98.0MHz and adjust L771 so that the voltage between TP3 and TP4 output becomes 0V ± 0.04V.
   Next, check that the distortion is less than 1.3%.

8. Output Level Check
   AM
   Settings : • Test point : TP8 (Lch), TP9 (Rch)
   Method : Set to AM 1000kHz and check that the test point is 150mV ± 3dB.
   FM
   Settings : • Test point : TP8 (Lch), TP9 (Rch)
   Method : Set to FM 98.0MHz and check that the test point is 600mV ± 3dB.

PRACTICAL SERVICE FIGURE

<TUNER SECTION>

<FM SECTION>

IHF Sensitivity :	Less than 10dB
(THD 3%)	[at 87.5MHz]
	Less than 9dB
	[at 98.0 / 108.0MHz]
S/N 50dB Quieting sensitivity :	
	Less than 35dB
	[at 98.0MHz]
Signal to noise ratio :	(MONO) More than 72dB
(Input 54dB)	(STEREO) More than 66dB
	[at 98.0MHz]
Distortion :	(MONO) Less than 1.2%
	(STEREO) Less than 2.0%
	[at 98.0MHz]
Auto stop level :	25dB ± 10dB
	[at 98.0MHz]
Stereo separation :	More than 30dB
	[at 98.0MHz]
Intermediate frequency :	10.7MHz

<AM SECTION>

Sensitivity :	Less than 60dB
(S/N 20 dB)	[at 600kHz]
	Less than 58dB
	[at 1000 / 1400kHz]
Signal to noise ratio :	More than 36dB
(Input 74dB)	[at 1000kHz]
Distortion :	Less than 1.5%
	[at 1000kHz]
Auto stop level :	52dB +10/–15dB
	[at 1000kHz]
Intermediate frequency :	450kHz

ADJUSTMENT – 2 <MD>

1. Temperature compensation adjustment
   - Test point: Check on the display message.
   - Jig: Thermometer
   - Method
     1) After MD TEST MODE is activated, press [□] button to show the "ALL SVoFF" message on the display.
     2) Press (DISPLAY) button to switch the display to "TEMP = $**".
     3) Press [00] button to switch the display to "T+**C:+00".
     4) Place a thermometer close to MD mechanism and measure the temperature.
     5) Check the temperature. Adjust the value displayed on** with [◁◁◁◁] and [▷▷▷▷] buttons so that the value becomes the same as the temperature. Press (ENTER) button to confirm.
     6) After adjustment, press [□] button to return to "ALL SVoFF".

     Note: Do not perform this adjustment, if temperature cannot be measured.

2. Checking laser power adjustment
   - Test point: PICK UP laser output
   - Jig: Laser power meter
   - Method
     1) Press (EDIT) button three times at "ALL SVoFF" to switch the display to "LA WRITE".
     2) Press [00] button once to switch the display to "LASER=$**".
     3) Measure laser output of PICK UP with laser power meter, and adjust the value to 6.8 ± 0.03mW with [◁◁◁◁] and [▷▷▷▷] buttons. Press (ENTER) button to confirm.
     4) After adjustment, press [□] button to return to "ALL SVoFF".

     Note: PICK UP may be damaged, if laser output exceeds 7.0mW.

3. AUTO SEQUENCE ADJ (EFB/IVR/FOCUS AGC/TRACKING AGC adjustment)
   - Test point: Check on the display message.
   - Test Disc: MDW-60, TGYS-1 or equivalent
   - Method
     1) Place MDW-60 on tray 1, press [△] (OPEN/CLOSE) button to load.
     2) Press (MODE) button to display the message, "SEL GRV".
     3) Press [MD] (MD Function) button to display the message, "AUTO ADJ". After the adjustment, the display shows "DONE". (The message, "FAILED" shows that adjustment has not been performed.)
     4) After adjustment, press [□] button to return to "ALL SVoFF".

     ◇ Checking IVR, EFB, focus/tracking/sled gain

     ①Move PICK UP to the middle track with [◁◁◁◁] and [▷▷▷▷] buttons.

     ②Press [▷] button to display the "FOCUS ON!" message.

     ③Press (ENTER) button to switch to "ALL SV ON" status.

     ④Press [□] button once and (DISPLAY) button twice.

     At this time, check that the display message, "I**:E$ØØ" shows the following values.

     「* *」..... 05~08

     「◇◇」..... 0B~11

     ⑤Press (DISPLAY) button once more.

     At this time, check that the display message, "G**t##S△△" show the following values.

     「* *」..... 15~40

     「## 」..... 15~40

     「△ △」..... 15~40

     ⑥After checking, press [□] button to return to "ALL SVoFF".
     5) Place TGYS-1 on tray 1, press [△] (OPEN/CLOSE) button to load.
     6) Press (MODE) button to display the message, "SEL PIT".
     7) Press [MD] (MD function) button to display the message, "AUTO ADJ", and after adjustment, the "DONE" message appears. (The "FAILED" message shows that no adjustment could be done.)
     8) After the adjustment, press [□] button to return to "ALL SVoFF".

     ◇ Checking IVR, EFB, focus/tracking/sled gain

     ① In the same steps as MO disc, compare with the following values.

     「IVR」..... 13 ~ 18

     「EFB」..... OC ~ 11

     「focus gain」..... 20 ~ 40

     「tracking gain」..... 15 ~ 40

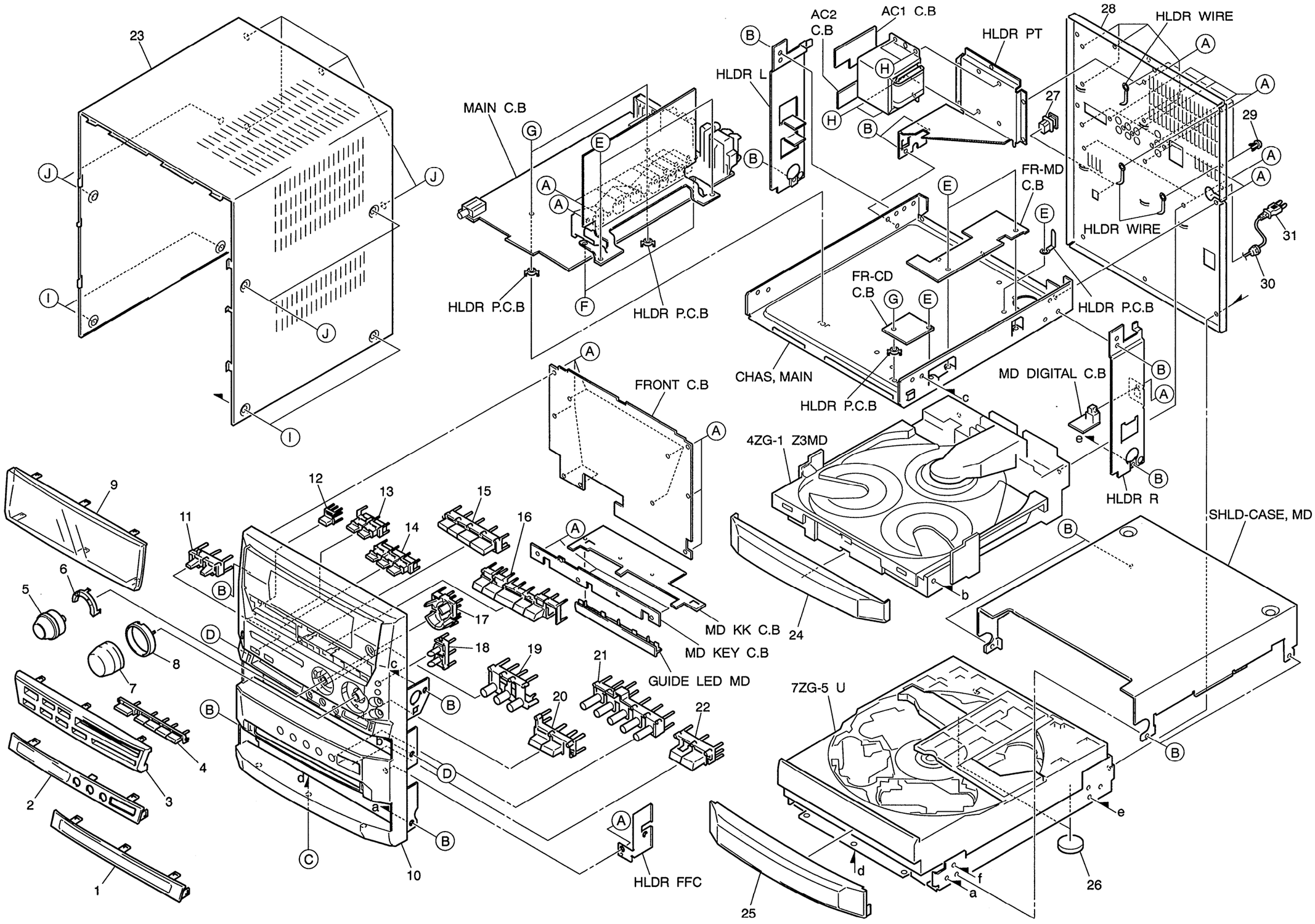
     「sled gain」..... 15 ~ 40

     ② After checking, press [□] button to return to "ALL SVoFF".

4. Checking focus servo / error rate. (PIT DISC)
   1) Place TGYS-1 on tray 1, press [△] (OPEN/CLOSE) button to load.
   2) Move PICK UP to the middle track with [◁◁◁◁] and [▷▷▷▷] buttons.
   3) Press (MODE) button to display the message, "SET PIT".
   4) Press [▷] button to display the message, "FOCUS ON!".
   5) Press (ENTER) button to display the message, "ALL SV ON", and press (DISPLAY) button once to check that address display is successfully sent.
   6) Press (DISPLAY) button again to display the replay error rate.
      Check that the number shown in the underlined part of 「**** : ****」is less than 0030.
   7) After adjustment, press [□] button to return to "ALL SVoFF".

5. Checking the playback/record error rate
   1) Place MDW-60 on tray 1, press [△] (OPEN/CLOSE) button to load.
   2) Move PICK UP to the middle track with [◁◁◁◁] and [▷▷▷▷] buttons.
   3) Press [CD] button to start recording from 600 cluster.
   4) Record around 15 seconds, and press [□] button.
   5) Press [AUX/D-IN] button to switch to "ALL SV ON", and press (DISPLAY) button around 600 cluster.
      Check that the number shown in the underlined part of 「**** : ****」is less than 0020.
   6) After adjustment, press [□] button to return to "ALL SVoFF".

MECHANICAL EXPLODED VIEW 1 / 1

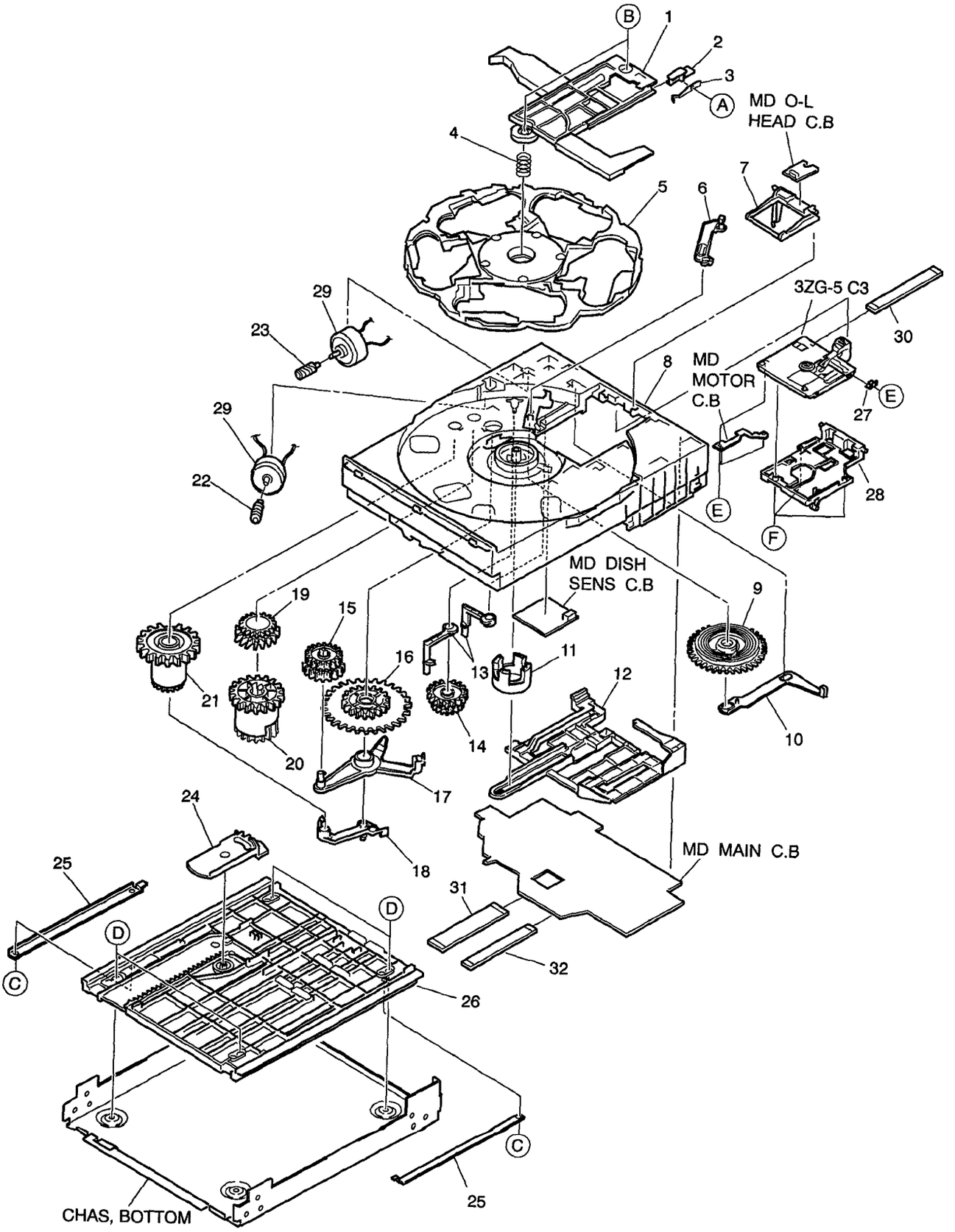


MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-NB5-005-010		WINDOW,MD
2	87-NB5-007-010		WINDOW,CD
3	87-NB5-002-010		PANEL,FR
4	87-NB5-031-010		KEY,REC
5	87-NB5-017-010		KNOB,RTRY JOG
6	87-NB5-018-010		PANEL,JOG
7	87-NB5-016-010		KNOB,RTRY VOL
8	87-NB5-015-010		RING,VOL
9	87-NB5-006-010		WINDOW,DISP
10	87-NB5-081-010		CABI,FR U
11	87-NB5-035-010		KEY,VF
12	87-NB5-027-010		KEY,POWER
13	87-NB5-020-010		KEY,ASSY FUN CD
14	87-NB5-021-010		KEY,ASSY FUN TUN
15	87-NB5-040-010		KEY,SURROUND
16	87-NB5-029-010		KEY,ASSY OPE
17	87-NB5-033-010		KEY,EDIT
18	87-NB5-032-010		KEY,MIC
19	87-NB5-036-010		KEY,DISC CD
20	87-NB5-038-010		KEY,OPEN CD
21	87-NB5-037-010		KEY,DISC MD
22	87-NB5-039-010		KEY,OPEN MD
23	87-NB5-010-010		CABI,STEEL
24	87-NB5-003-010		PANEL,TRAY CD D
25	87-NB5-004-010		PANEL,TRAY MD D
26	87-NB5-205-010		FOOT,DIA25-5
27	84-ZG1-245-210		CAP,OPTICAL
28	87-NB5-082-010		PANEL,REAR US
29	87-084-077-010		NYLON RIVET, 3.5-4.5
30	87-085-189-010		BUSHING, CORD (U)
⚠ 31	87-A80-093-010		AC CORD ASSY,U-2 2300
A	87-067-703-010		TAPPING SCREW, BVT2+3-10
B	87-591-094-410		TAPPING SCREW, QIT+3-6
C	87-067-689-010		TAPPING SCREW, BVTT+3-8
D	87-721-097-410		QT2+3-12 GLD
E	87-067-579-010		TAPPING SCREW, BVT2+3-8
F	87-NF4-224-010		S-SCREW,IT3B+3-8 CU
G	87-067-758-010		BVT2+3-12 W/O SLOT
H	87-078-019-010		S-SCREW,IT+4-6
I	87-B10-150-010		UIT+3-4 W/O SLOT BLK
J	87-743-095-410		UT2+3-8 W/O SLOT BLK

MD MECHANISM EXPLODED VIEW 1 / 2

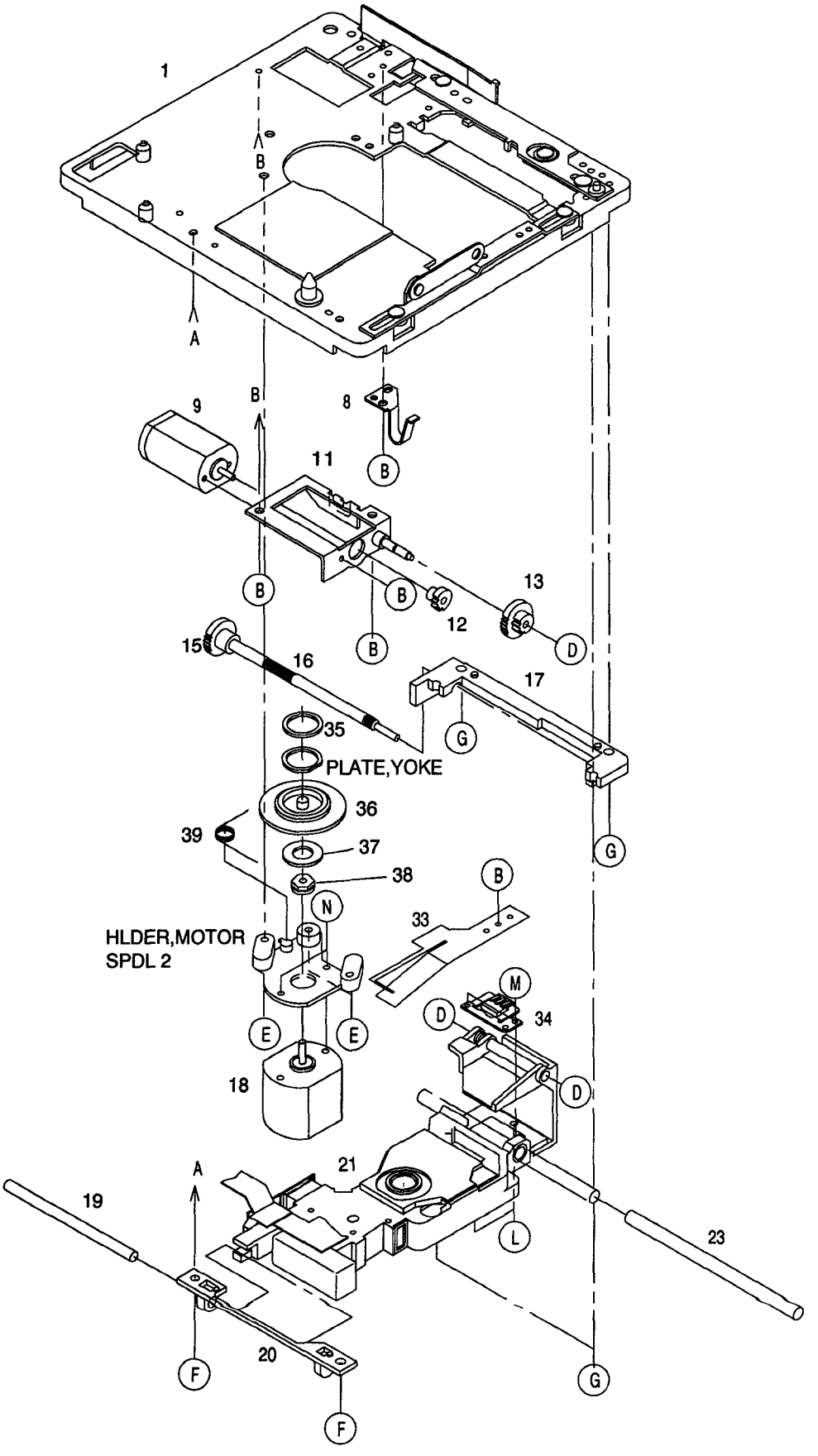


MD MECHANISM PARTS LIST 1 / 2

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-ZG5-204-010		COVER, T-T
2	87-ZG5-210-010		SLIDER,OPEN
3	87-ZG5-236-010		SPR-P,SHUTTER
4	87-ZG5-237-010		SPR-C,T-T
5	87-ZG5-202-010		TURN TABLE,MD
6	87-ZG5-208-010		SLIDER,LOCK T-T
7	87-ZG5-211-010		LEVER,REC
8	87-ZG5-201-010		TRAY,MECHA
9	87-ZG5-221-010		GEAR,CAM
10	87-ZG5-209-010		SLIDER,REC
11	87-ZG5-214-010		CLR,T-T
12	87-ZG5-205-010		SLIDER,MAIN
13	87-ZG5-213-010		LEVER,SW2
14	87-ZG5-223-010		GEAR,WORM-WHL-1
15	87-ZG5-227-010		GEAR,2
16	87-ZG5-226-010		GEAR,1
17	87-ZG5-207-010		LEVER,MODE-CHG
18	87-ZG5-212-010		LEVER,SW1
19	87-ZG5-225-010		GEAR,WORM-WHL-2
20	87-ZG5-229-010		GEAR,4
21	87-ZG5-228-010		GEAR,3
22	87-ZG5-224-010		GEAR,WORM-2
23	87-ZG5-222-010		GEAR,WORM-1
24	87-ZG5-220-010		GEAR,LOCK-TRAY
25	87-ZG5-234-010		PLATE,G-TRAY
26	87-ZG5-203-010		GUIDE,TRAY
27	85-HM1-222-010		DMPR,PLATE
28	87-ZG5-206-010		HLDR,MECHA
29	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
30	87-ZG5-633-010		CABLE,FFC 8P-0.50-135
31	87-NB5-635-110		FF-CABLE,23P 1.00 750MM
32	87-NB5-636-110		FF-CABLE,12P 1.00 900MM
A	87-357-503-310		VT2+1.4-2
B	87-763-095-410		VFT2+3-8 W/O BLK
C	87-723-036-410		SCREW QT2+2-8 BLK
D	87-ZG5-238-010		S-SCREW,CUSH MD
E	87-067-746-010		SCREW,M 1.4-2(H0.5)
F	87-262-507-310		SCREW V+1.4-3

MD MECHANISM EXPLODED VIEW 2 / 2



MD MECHANISM PARTS LIST 2 / 2

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

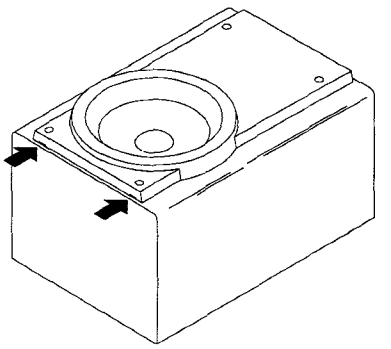
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG5-213-010		CHAS,C3 ASSY
8	83-ZG5-265-010		SPR-P,GEAR P.U.
9	87-045-374-010		MOT,FFM20VK-7Z170
11	83-ZG5-261-010		HLDR,MOTOR P.U.ASSY
12	83-ZG5-268-010		GEAR,MOTOR P.U.
13	83-ZG5-267-010		GEAR,P.U.B
15	83-ZG5-266-010		GEAR,P.U.A
16	83-ZG5-254-110		SHAFT,PU GUIDE C
17	83-ZG5-253-110		HLDR,PU GUIDE B
18	87-A90-413-010		MOT,FF-110PH 9
19	83-ZG5-311-010		SHAFT P.U GUIDE A3
20	83-ZG5-252-110		HLDR,PU GUIDE A
21	83-ZG5-244-010		PICK UP ASSY,C3
23	83-ZG5-251-010		SHAFT,P.U.GUIDE B
33	87-046-415-010		HEAD,RF320-74H
34	83-ZG5-247-110		SPR-P,INSERT ASSY
35	83-ZG5-605-010		MAGNET,CHUCK
36	83-ZG5-302-010		TURN TABLE,MD1
37	83-ZG5-305-010		SPR-P,DISK
38	83-ZG5-308-010		BRG,1.5-2
39	83-ZG5-309-010		SPR-T,SPINDLE
B	87-261-500-310		V+1.4-1.4 BLK(1)
D	87-078-123-010		PW,1.1-2.5-0.3 C
E	83-ZG5-313-010		S-SCREW,V+1.7-5.5
F	87-262-505-310		V+1.4-2.5 BLK(3)
G	87-262-507-310		V+1.4-3.0 BLK
L	87-262-523-310		V+1.7-2 BLK(3)
M	87-067-393-010		S-SCREW 1.4-1.4BLK
N	83-ZG5-314-010		S-SCREW,V+1.7-3

SPEAKER DISASSEMBLY INSTRUCTIONS

Type.1

矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットのビスを取り、スピーカーユニットを外してください。

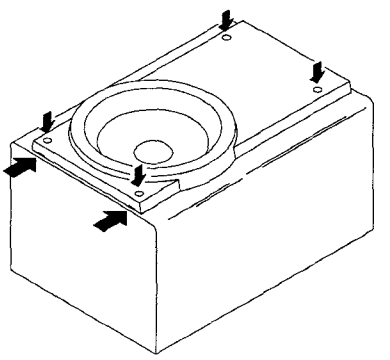
Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.



Type.2

グリルフレームを外し、4個のゴムキャプをマイナスドライバーで端の方から持ち上げて外すと中にビスが有りますので、ビスを取り外します。矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットのビスを取り、スピーカーユニットを外してください。

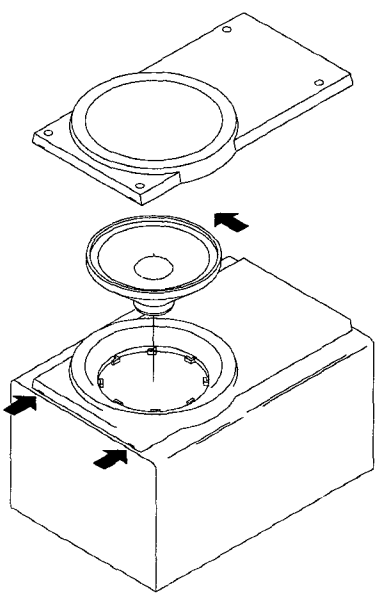
Remove the grill frame and four pieces of rubber caps by pulling out with a flat-bladed screwdriver Remove the screws from hole where installed rubber caps. Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.



Type.3

矢印の位置にマイナスドライバーを差し込んで、パネルを外します。各々のスピーカーユニットの凹にマイナスドライバーを差し込んで、反時計方向に回転させスピーカーユニットを外してください。スピーカーユニット交換後は時計方向にクリック音がするまで、回転させて取り付けます。

Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Turn the speaker unit to counter-clockwise direction while inserting a flat-bladed screwdriver into one of the hollows arround speaker unit, and then remove the speaker unit. After replacing the speaker unit, install it turning to clockwise direction until "click" sound comes out



SPEAKER PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	86-NST-604-010		SPKR,T 60
2	87-NSL-602-010		SPKR,W 160
3	87-NSG-605-010		SPKR,CORD
4	87-NSL-001-010		PANEL,FR
5	87-NSL-002-010		PANEL,SPKR
6	87-NSL-004-010		GRILLE,FRAME ASSY

ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-NB5-903-110		IB,U(ESF)I
2	87-NB5-650-110		RC UNIT,RC-7AS15
3	87-043-115-010		ANT,FEEDER FM
4	87-006-225-010		AM LOOP ANT NC2

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G－ －	
G－ －	
G－ －	

アイワ株式会社
AIWA CO.,LTD.

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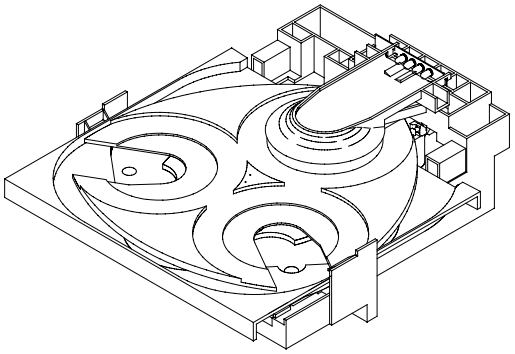
4ZG-1



CD MECHANISM

• BASIC CD MECHANISM:3ZG-2 E1

• TYPE: English

BASIC NAME	DERIVATION NAME					
4ZG-1	V	O	S1	D	SH	

■ This Service Manual has various derivation.Derivation name is indicated by the Service Manual for each model.

SERVICE MANUAL

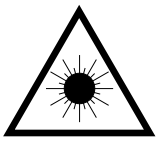
S/M Code No 09-985-249-80T

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynling laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

VARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

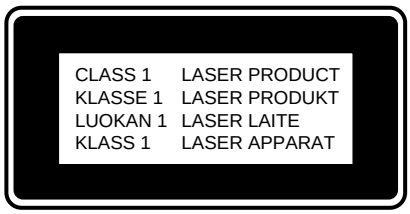
ATTENTION

L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

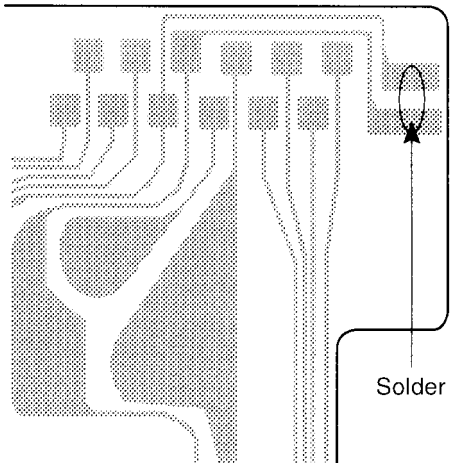


Precaution to replace Optical block (KSS-213F)

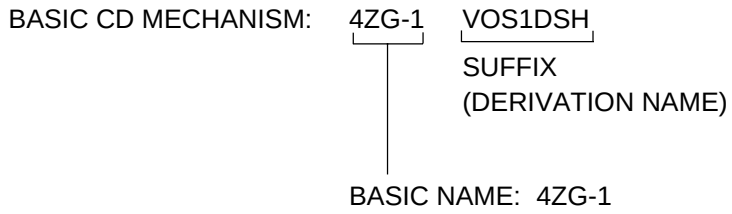
Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in the right figure.

PICK-UP Assy P.C.B



This is the SERVICE MANUAL for the BASIC CD MECHANISM of BASIC NAME: 4ZG-1. This BASIC NAME includes the following models as shown under the SUFFIX name: DERIVATION NAME. Please use this manual with the separate SERVICE MANUAL for DERIVATION NAME.



BASIC NAME	DERIVATION NAME							
4ZG-1	V	O	S1	D	SH	—	—	—

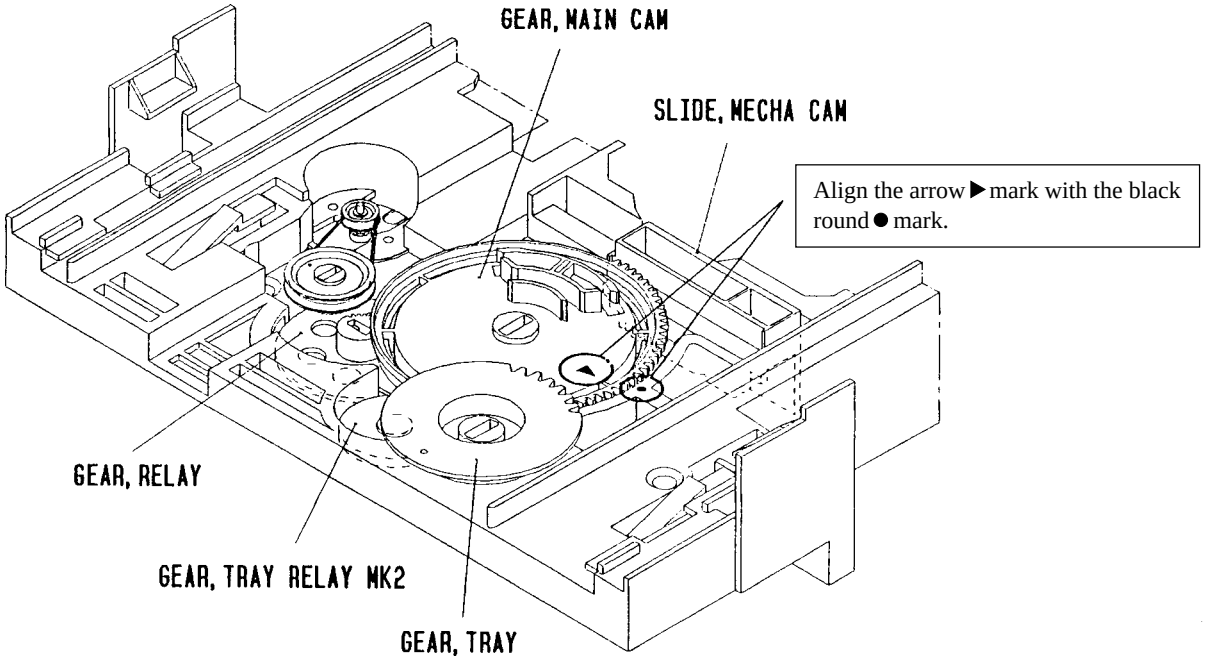
DERIVATION NAME

- V: VIDEO OUT
- O: On screen display
- S1: THE 1st SONY IC MODEL
- D: Digital output function
- SH: Pick up equipped with shutter

How to Adjust the Rotating Phase of the Gear, Main Cam

1) Push down the hooking catch of the CHAS. MECH, and remove the TRAY.
2) Align the arrow mark of the Gear, Main Cam with the black round mark of the CHAS, MECHA as shown below.
3) Confirm that the Slide, Mech Cam is located in the right position, then insert the TRAY gently.

Caution: If the rotating phase of the Gear, Main Cam is incorrectly adjusted, the chucking operation and tray movement will have malfunction.



ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

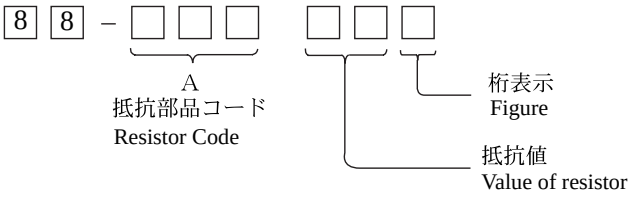
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-A20-547-010		C-IC,CXA1992AR
	87-A20-919-040		C-IC,BA5915FP
	87-A20-917-010		C-IC,CXD2540Q-1/2
	84-ZG1-697-010		C-IC,UPD78016FGC-549
	87-017-825-010		IC,GP1F32T
	87-017-760-080		IC,M51943BML
	87-A20-602-040		C-IC,M5291FP
	87-A20-925-040		C-IC,BA05FP
	87-A20-905-040		C-IC,BA033FP
	87-001-873-010		IC,LB1644
	87-A20-920-010		C-IC,CL680-D1
	87-A20-921-040		C-IC,SN74LVU04APW
	87-A20-656-040		C-IC,MB81V4260S-60/70PFTN
	84-ZG1-695-040		C-IC,LH5V2RN1
	87-A20-975-040		C-IC,SN74LV74APW
	87-A20-974-040		C-IC,LC74781M-9017
	87-A20-918-040		C-IC,SM5878AM
TRANSISTOR			
	87-026-463-080		TR,2SA933S (0.3W)
	87-026-237-080		CHIP-TR,DTC124XK
	89-327-125-080		CHIP TR,2SC2712GR
	87-026-231-080		CHIP-TRANSISTER,DTA124XK
	87-A30-117-010		TR,2SA1357
	89-111-625-080		TR,2SA1162 (0.15W)
	87-026-580-080		C-TR,DTA123JK
	87-026-470-080		TR,HN1C03F (0.3W)
DIODE			
	87-020-027-080		CHIP-DIODE 1SS184
	87-017-024-040		C-DIODE,DA204K
	87-A40-180-040		C-DIODE,SB07-015C
	87-A40-384-080		C-ZENER,UDZ3.3B
3CD C.B			
C101	87-010-182-080		C-CAP,S 2200P-50 B
C102	87-016-669-080		C-CAP,S 0.1-25 K B
C103	87-016-669-080		C-CAP,S 0.1-25 K B
C104	87-016-669-080		C-CAP,S 0.1-25 K B
C105	87-010-404-040		CAP,E 4.7-50 SME
C106	87-016-369-080		C-CAP,S 0.033-25 B K
C107	87-010-197-080		CAP, CHIP 0.01 DM
C108	87-010-401-040		CAP,E 1-50 SME
C109	87-010-382-040		CAP,E 22-25 SME
C110	87-010-213-080		C-CAP,S 0.015-50 B
C111	87-010-263-040		CAP,E 100-10
C112	87-010-197-080		CAP, CHIP 0.01 DM
C113	87-016-369-080		C-CAP,S 0.033-25 B K
C114	87-016-369-080		C-CAP,S 0.033-25 B K
C115	87-016-369-080		C-CAP,S 0.033-25 B K
C116	87-012-158-080		C-CAP,S 390P-50 CH
C117	87-012-154-080		C-CAP,S 150P-50 CH
C118	87-010-494-040		CAP,E 1-50 GAS
C119	87-010-152-080		C-CAP,S 8P-50 CH
C120	87-010-992-080		C-CAP,S 0.047-25 B
C121	87-010-992-080		C-CAP,S 0.047-25 B
C123	87-016-669-080		C-CAP,S 0.1-25 K B
C125	87-010-198-080		CAP, CHIP 0.022
C126	87-016-669-080		C-CAP,S 0.1-25 K B
C127	87-010-555-040		CAP,E 100-10 GAS
C130	87-010-555-040		CAP,E 100-10 GAS
C131	87-010-555-040		CAP,E 100-10 GAS
C132	87-010-178-080		CHIP CAP 1000P
C133	87-010-555-040		CAP,E 100-10 GAS
C134	87-010-196-080		CHIP CAPACITOR,0.1-25
C135	87-010-196-080		CHIP CAPACITOR,0.1-25
C136	87-010-196-080		CHIP CAPACITOR,0.1-25
C137	87-010-196-080		CHIP CAPACITOR,0.1-25
C138	87-010-182-080		C-CAP,S 2200P-50 B
C139	87-010-197-080		CAP, CHIP 0.01 DM
C140	87-010-112-040		CAP,E 100-16
C141	87-010-196-080		CHIP CAPACITOR,0.1-25
C142	87-010-196-080		CHIP CAPACITOR,0.1-25
C143	87-010-213-080		C-CAP,S 0.015-50 B
C151	87-010-263-040		CAP,E 100-10
C152	87-010-197-080		CAP, CHIP 0.01 DM
C153	87-A10-893-040		CAP,E 220-10 M PW
C154	87-010-197-080		CAP, CHIP 0.01 DM
C155	87-010-184-080		CHIP CAPACITOR 3300P(K)
C156	87-010-992-080		C-CAP,S 0.047-25 B
C157	87-010-992-080		C-CAP,S 0.047-25 B
C158	87-012-156-080		C-CAP,S 220P-50 CH
C159	87-016-526-080		C-CAP,S 0.47-16 BK
C160	87-010-314-080		C-CAP,S 22P-50V
C161	87-010-182-080		C-CAP,S 2200P-50 B
C162	87-010-178-080		CHIP CAP 1000P
C201	87-016-669-080		C-CAP,S 0.1-25 K B
C204	87-010-197-080		CAP, CHIP 0.01 DM
C205	87-010-379-040		CAP,E 22-16 M SME
C206	87-010-322-080		C-CAP,S 100P-50 CH
C207	87-010-322-080		C-CAP,S 100P-50 CH
C208	87-010-322-080		C-CAP,S 100P-50 CH
C209	87-010-322-080		C-CAP,S 100P-50 CH
C210	87-016-669-080		C-CAP,S 0.1-25 K B
C211	87-010-263-040		CAP,E 100-10
C213	87-010-190-080		S CHIP F 0.01
C214	87-010-196-080		CHIP CAPACITOR,0.1-25
C301	87-016-251-040		CAP,E 220-16 SMG
C302	87-012-140-080		CAP 470P
C303	87-010-178-080		CHIP CAP 1000P
C304	87-010-384-040		CAP,E 100-25 SME
C305	87-010-982-040		CAP,E 33-25 GAS
C306	87-010-112-040		CAP,E 100-16
C307	87-010-196-080		CHIP CAPACITOR,0.1-25
C308	87-010-263-040		CAP,E 100-10
C309	87-010-196-080		CHIP CAPACITOR,0.1-25
C310	87-010-263-040		CAP,E 100-10
C311	87-010-196-080		CHIP CAPACITOR,0.1-25
C312	87-010-178-080		CHIP CAP 1000P
C320	87-010-196-080		CHIP CAPACITOR,0.1-25
C401	87-016-044-040		CAP,E 100-16 GAS
C402	87-010-190-080		S CHIP F 0.01
C403	87-010-190-080		S CHIP F 0.01
C501	87-010-197-080		CAP, CHIP 0.01 DM
C502	87-010-197-080		CAP, CHIP 0.01 DM
C503	87-010-197-080		CAP, CHIP 0.01 DM
C504	87-010-154-080		CAP CHIP 10P
C505	87-010-154-080		CAP CHIP 10P
C506	87-010-197-080		CAP, CHIP 0.01 DM
C508	87-010-263-040		CAP,E 100-10
C509	87-016-669-080		C-CAP,S 0.1-25 K B
C510	87-010-263-040		CAP,E 100-10
C511	87-016-669-080		C-CAP,S 0.1-25 K B
C512	87-010-197-080		CAP, CHIP 0.01 DM
C513	87-010-197-080		CAP, CHIP 0.01 DM
C514	87-010-197-080		CAP, CHIP 0.01 DM
C518	87-010-322-080		C-CAP,S 100P-50 CH
C519	87-012-145-080		CAP, CHIP S 270P CH
C520	87-012-157-080		C-CAP,S 330P-50 CH
C521	87-012-154-080		C-CAP,S 150P-50 CH
C522	87-010-371-080		CAP, ELECT 470-6.3V
C523	87-010-197-080		CAP, CHIP 0.01 DM
C524	87-010-197-080		CAP, CHIP 0.01 DM
C525	87-010-197-080		CAP, CHIP 0.01 DM
C526	87-010-197-080		CAP, CHIP 0.01 DM

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C527	87-010-197-080		CAP, CHIP 0.01 DM
C528	87-010-197-080		CAP, CHIP 0.01 DM
C529	87-010-197-080		CAP, CHIP 0.01 DM
C530	87-010-197-080		CAP, CHIP 0.01 DM
C531	87-010-197-080		CAP, CHIP 0.01 DM
C532	87-010-374-040		CAP,E 47-10
C533	87-010-197-080		CAP, CHIP 0.01 DM
C534	87-010-555-040		CAP,E 100-10 GAS
C535	87-010-197-080		CAP, CHIP 0.01 DM
C536	87-010-078-040		CAP,E 47-6.3 5L
C537	87-010-197-080		CAP, CHIP 0.01 DM
C538	87-010-196-080		CHIP CAPACITOR,0.1-25
C539	87-016-669-080		C-CAP,S 0.1-25 K B
C540	87-010-078-040		CAP,E 47-6.3 5L
C541	87-010-197-080		CAP, CHIP 0.01 DM
C542	87-010-318-080		C-CAP,S 47P-50 CH
C544	87-010-197-080		CAP, CHIP 0.01 DM
C546	87-010-197-080		CAP, CHIP 0.01 DM
C549	87-010-494-040		CAP,E 1-50 GAS
C550	87-010-196-080		CHIP CAPACITOR,0.1-25
C551	87-012-153-080		C-CAP,S 120P-50 CH
C552	87-016-526-080		C-CAP,S 0.47-16 BK
C554	87-010-197-080		CAP, CHIP 0.01 DM
C556	87-010-378-040		CAP,E 10-16
C557	87-010-316-080		C-CAP,S 33P-50 CH
C558	87-010-315-080		C-CAP,S 27P-50 CH
C560	87-010-197-080		CAP, CHIP 0.01 DM
C601	87-010-197-080		CAP, CHIP 0.01 DM
C602	87-010-197-080		CAP, CHIP 0.01 DM
C603	87-010-112-040		CAP,E 100-16
C604	87-010-196-080		CHIP CAPACITOR,0.1-25
C605	87-010-197-080		CAP, CHIP 0.01 DM
C606	87-010-197-080		CAP, CHIP 0.01 DM
C607	87-010-313-080		CAP, CHIP 18P
C608	87-010-313-080		CAP, CHIP 18P
C609	87-010-178-080		CHIP CAP 1000P
C610	87-010-178-080		CHIP CAP 1000P
C611	87-010-178-080		CHIP CAP 1000P
C612	87-010-178-080		CHIP CAP 1000P
C613	87-010-403-040		CAP,E 3.3-50 SME
C614	87-010-403-040		CAP,E 3.3-50 SME
C615	87-010-318-080		C-CAP,S 47P-50 CH
C616	87-010-318-080		C-CAP,S 47P-50 CH
CN101	87-A60-424-010		CONN,16P V TOC-B
CN102	87-099-199-010		CONN,6P 6216 H
CN401	87-099-212-010		CONN,5P 6216 V
CN403	87-099-030-010		CONN,13P 6216H
J501	87-009-502-010		JACK,PIN 1P Y EARTH
L101	87-005-196-080		COIL,10UH
L301	87-A50-095-010		COIL,68UH RCR875D
L302	87-005-426-080		COIL,3.3UH K FLR50
L502	87-005-204-080		COIL,47UH
L503	87-005-189-080		COIL 2.7UH
L504	87-005-187-080		COIL,1.8UH
L505	87-005-204-080		COIL,47UH
L506	87-005-204-080		COIL,47UH
L507	87-005-204-080		COIL,47UH
L508	87-005-817-080		C-COIL, 33UH J FLC32
M401	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
R130	87-022-364-080		C-RES,S 82K-1/10W F
R131	87-022-364-080		C-RES,S 82K-1/10W F
R132	87-022-364-080		C-RES,S 82K-1/10W F
R133	87-022-364-080		C-RES,S 82K-1/10W F
R134	87-022-364-080		C-RES,S 82K-1/10W F
R135	87-022-364-080		C-RES,S 82K-1/10W F
R507	87-A00-408-080		C-RES,S 2K-1/10W D
S201	87-A90-162-010		SW,SL 1-1-3 SSSU
S401	87-036-109-010		PUSH SWITCH
S402	87-036-109-010		PUSH SWITCH
W1	84-ZG1-673-010		F-CABLE,5P 1.25 210MM BLACK N
W2	85-NFT-611-110		FF-CABLE 16P-1.0
W3	84-ZG1-630-010		CABLE FFC 6P-1.25
X201	87-A70-124-080		VIB,CER 8.0MHZ
X501	87-A70-125-080		VIB,XTAL 27MHZ 50PPM
X601	87-030-270-080		VIB,XTAL 16.9344MHZ
LED C.B			
LED401	87-070-200-080		LED,SLP636C-81-S-T1
LED402	87-017-350-080		LED,SEL1550CM
LED403	87-017-350-080		LED,SEL1550CM
LED404	87-070-200-080		LED,SLP636C-81-S-T1
T-T C.B			
C401	87-018-214-080		CAP TC U 0.1-50F
CON401	86-NFZ-675-010		CONN,5P H 6216-11H
PS401	87-026-573-010		IC,GP1S53V
DRIVE C.B			
CN3	87-009-349-010		CONN,6P H WHT PH
M20	87-045-358-010		MOT,RF-310TA 43
M21	87-045-356-010		MOT,RF-310TA 30
SW1	87-A90-042-010		SW,LEAF MSW-17310MVPO
CD MOTOR C.B			
CN4	87-099-210-010		CONN,5P H BLK 6216
M1	87-045-305-010		MOT,RF-500TB
SW1	87-035-110-010		SW,MICRO SPPB62
SW2	87-035-110-010		SW,MICRO SPPB62

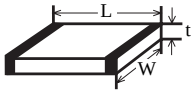
- Regarding connectors, they are not stocked as they are not the initial order items.
  The connectors are available after they are supplied from connector manufacturers upon the order is received.

○ チップ抵抗部品コード / CHIP RESISTOR PART CODE

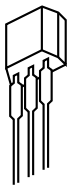
チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



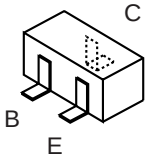
チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法 / Diamensions (mm)				抵抗コード　: A Resistor Code : A
				外形 / Form	L	W	t	
1/16W	1608	5%	CJ		1.6	0.8	0.45	108
1/10W	2125	5%	CJ		2	1.25	0.45	118
1/8W	3216	5%	CJ		3.2	1.6	0.55	128

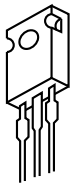
TRANSISTOR ILLUSTRATION



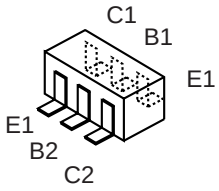
2SA933S



2SA1162
2SC2712
DTA123JK
DTA124XK
DTC124XK

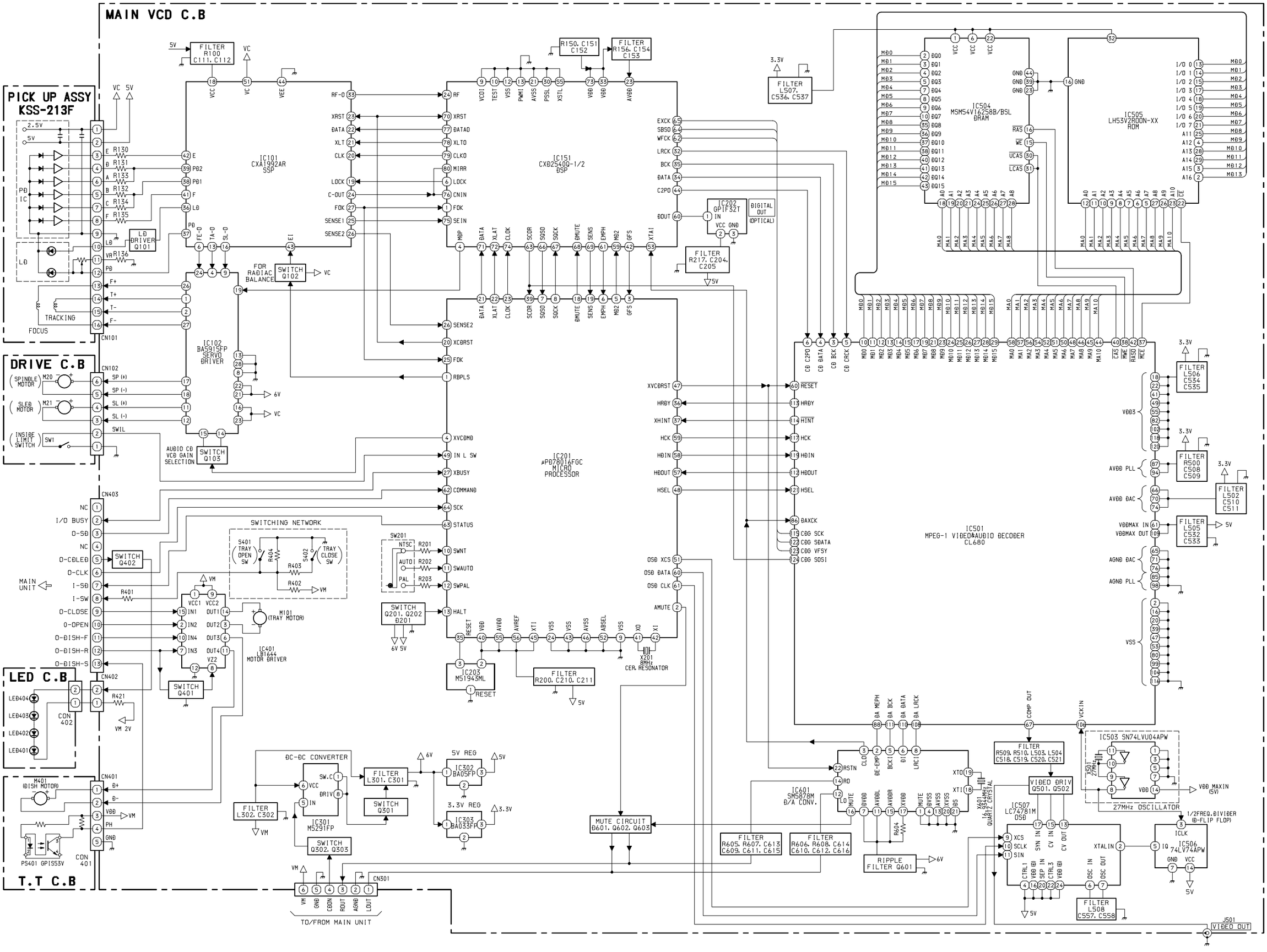


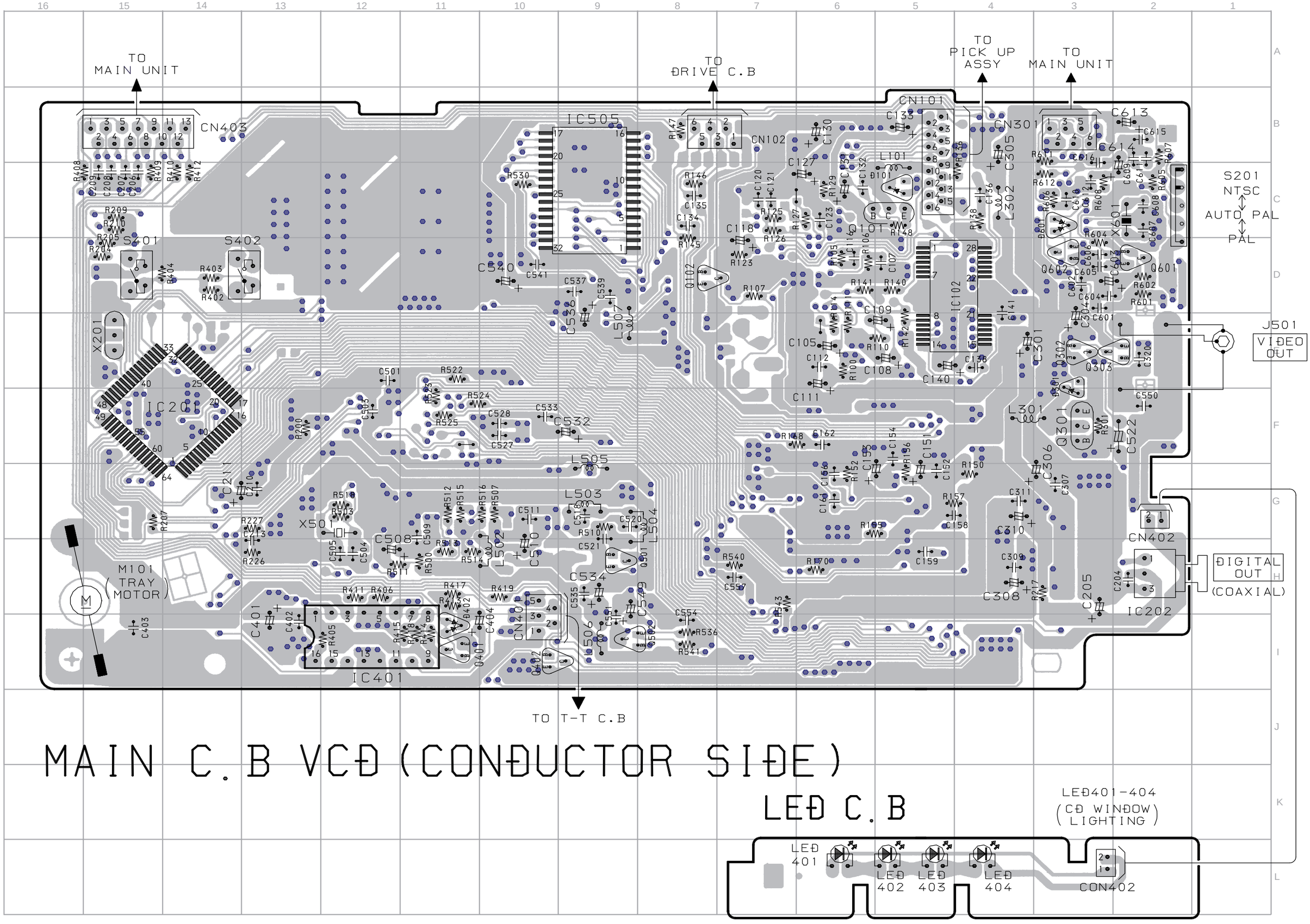
2SA1357

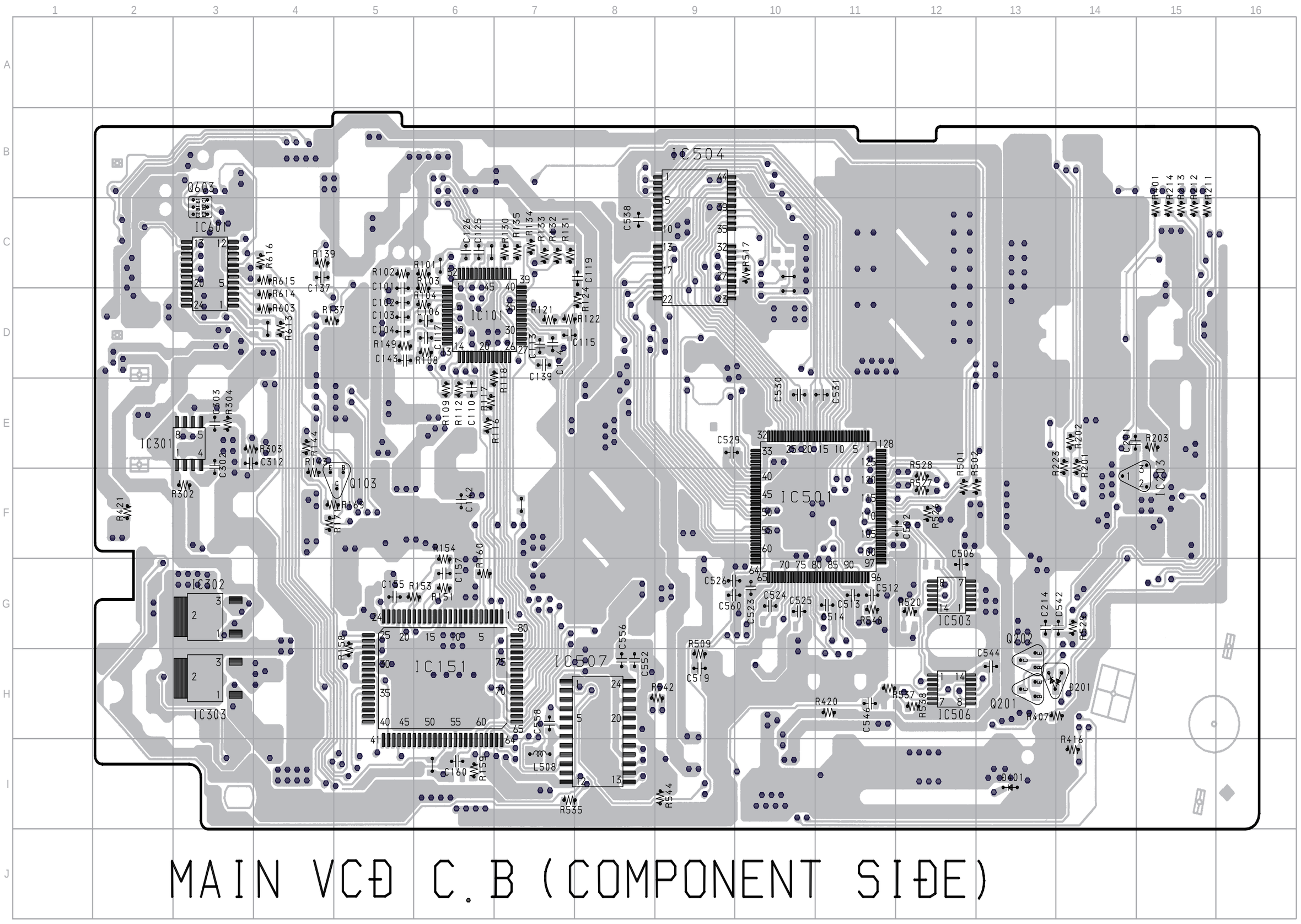


HN1C03F

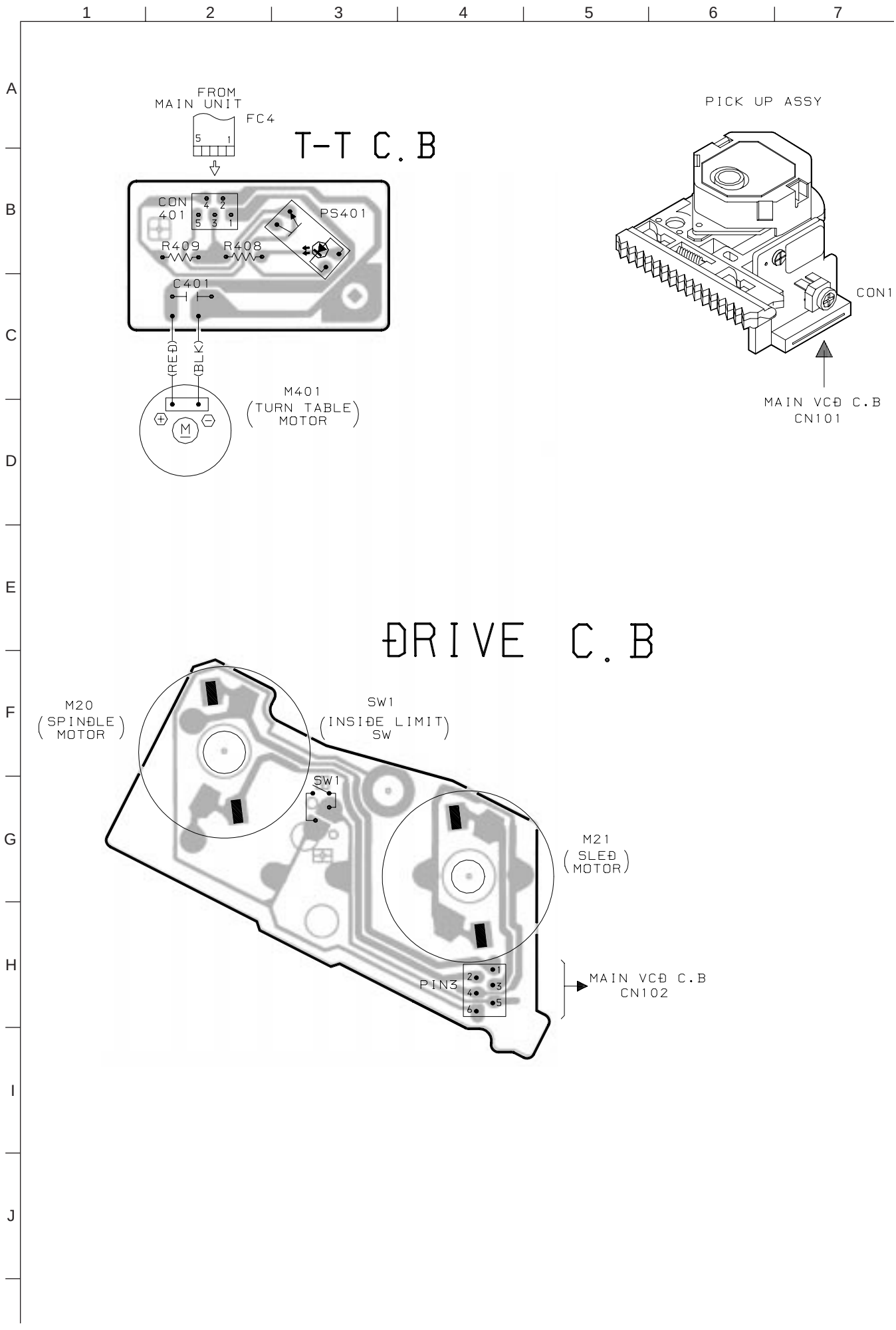
BLOCK DIAGRAM



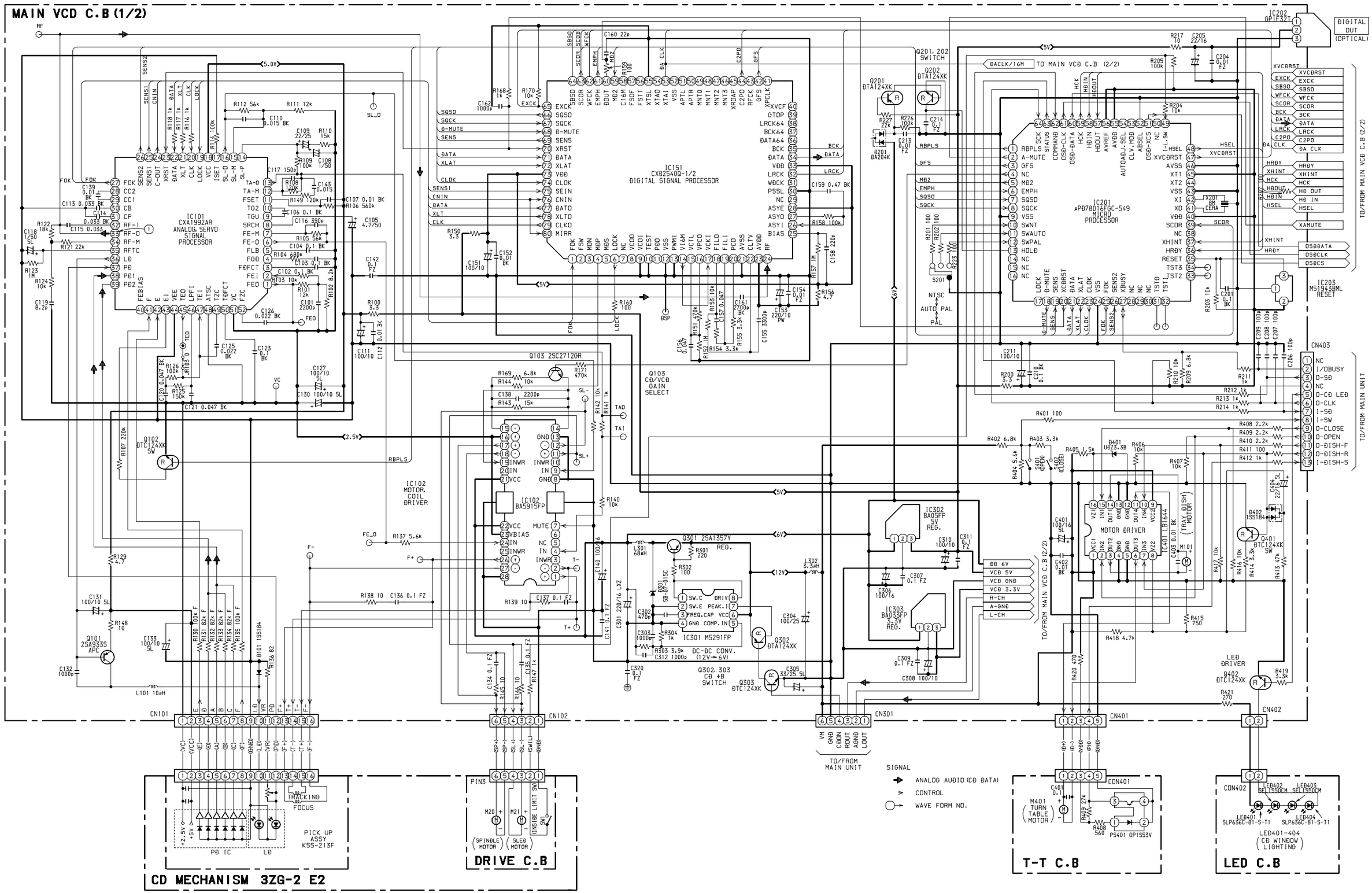

TO MAIN UNIT
TO ÐRIVE C.B
TO PICK UP ASSY
TO MAIN UNIT
CN403
CN102
CN101
CN301
CN402
IC505
IC201
IC401
IC202
IC102
S401
S402
S201 NTSC AUTO PAL PAL
J501 VIÐEO OUT
ÐIGITAL OUT (COAXIAL)
M101 (TRAY MOTOR)
TO T-T C.B
MAIN C.B VCÐ (CONÐUCTOR SIÐE)
LEÐ C.B
LEÐ401-404 (CÐ WINÐOW LIGHTING)
LEÐ 401
LEÐ 402
LEÐ 403
LEÐ 404
CON402

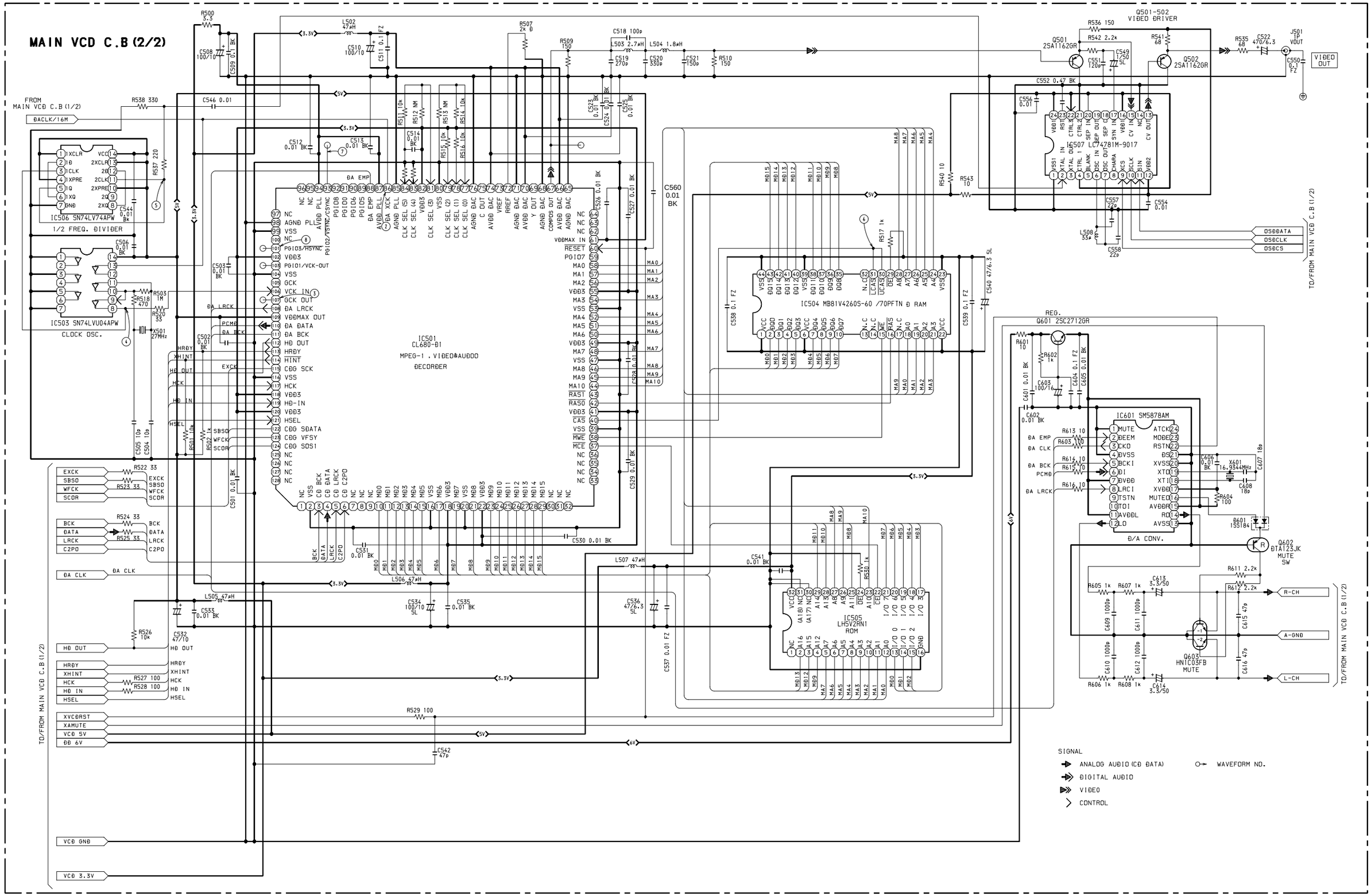


MAIN VCÐ C.B (COMPONENT SIÐE)


FROM
MAIN UNIT
FC4
5
1
T-T C.B
CON
401
4
2
5
3
1
PS401
R409
R408
C401
(RED)
(BLK)
M401
(TURN TABLE
MOTOR)
M
PICK UP ASSY
CON1
MAIN VCD C.B
CN101
DRIVE C.B
M20
(SPINDLE
MOTOR)
SW1
(INSIDE LIMIT
SW)
SW1
M21
(SLED
MOTOR)
PIN3
1
2
3
4
5
6
MAIN VCD C.B
CN102

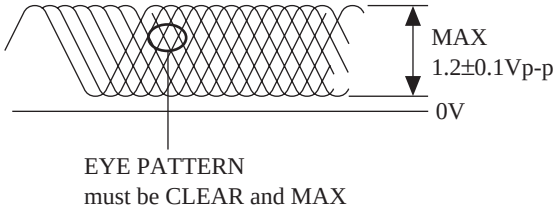
SCHEMATIC DIAGRAM-1




MAIN VCD C.B (2/2)
FROM MAIN VCD C.B (1/2)
ÐACLK/16M
IC506 SN74LV74APW
1/2 FREQ. ÐIVIÐER
IC503 SN74LVU04APW
CLOCK OSC.
X501 27MHz
IC501 CL680-Ð1
MPEG-1 . VIÐEO&AUÐIO ÐECORÐER
IC504 MB81V4260S-60 /70PFTN Ð RAM
IC505 LH5V2RN1 ROM
IC507 LC74781M-9017
Q501-502 VIÐEO ÐRIVER
Q501 2SA1162GR
Q502 2SA1162GR
REG. Q601 2SC2712GR
IC601 SM5878AM
Ð/A CONV.
Q602 ÐTA123JK MUTE SW
Q603 HN1C03FB MUTE
D601 1SS184
VIÐEO OUT
TO/FROM MAIN VCÐ C.B (1/2)
TO/FROM MAIN VCÐ C.B (1/2)
OSÐÐATA
OSÐCLK
OSÐCS
R-CH
A-GNÐ
L-CH
SIGNAL
ANALOG AUÐIO (CÐ ÐATA)
ÐIGITAL AUÐIO
VIÐEO
CONTROL
WAVEFORM NO.

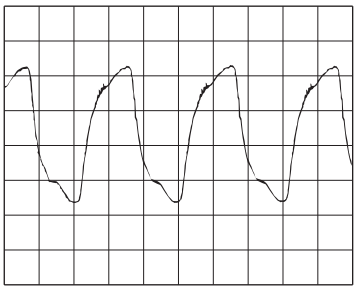
WAVE FORM

① IC101 Pin ㉝ (RF-O)
VOLT/DIV: 200mV
TIME/DIV: 0.5µS

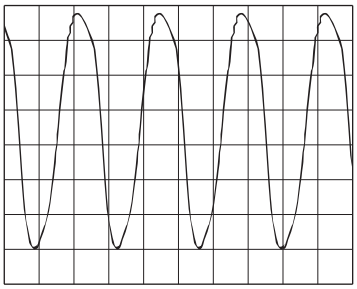


EYE PATTERN
must be CLEAR and MAX

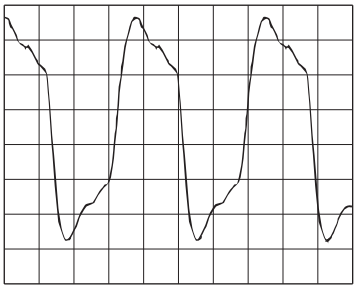
② IC501 Pin ㊽ DA XCK
16.93MHz
VOLT/DIV: 1V
TIME/DIV: 20nS



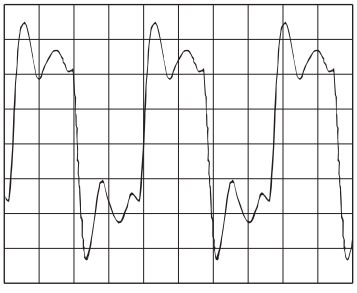
③ IC501 Pin ⑩⑦ GCK OUT
42.3MHz
VOLT/DIV: 1V
TIME/DIV: 10nS



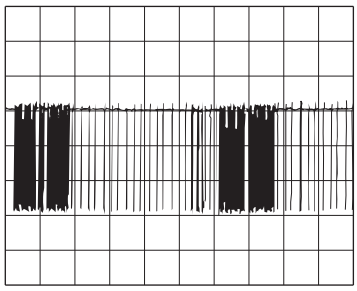
④ IC503 Pin ⑧ 33 VCK
27MHz±1.35kHz
VOLT/DIV: 1V
TIME/DIV: 10nS



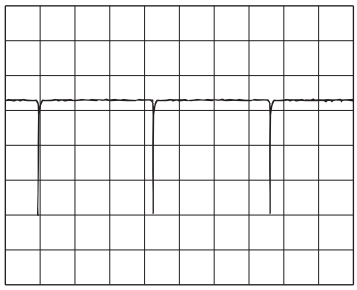
⑤ IC506 Pin ⑪ OSD CLK
13.5MHz±675Hz
VOLT/DIV: 1V
TIME/DIV: 20nS



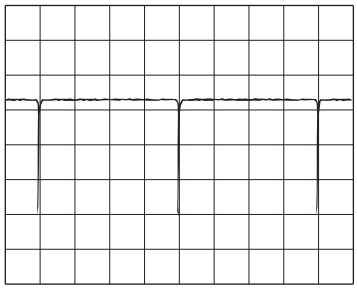
⑥ IC504 Pin ㉚ $\overline{\text{UCAS}}$
(Pin ㉛ $\overline{\text{LCAS}}$)
VOLT/DIV: 1V
TIME/DIV: 2µS



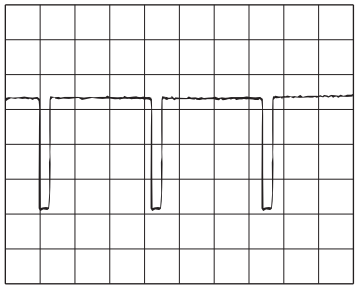
⑦ IC501 Pin ㉝ $\overline{\text{VSync}}$
NTSC
VOLT/DIV: 1V
TIME/DIV: 5mS



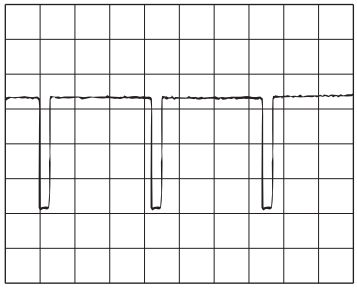
⑧ IC501 Pin ㉝ $\overline{\text{VSync}}$
PAL
VOLT/DIV: 1V
TIME/DIV: 5mS



⑧ IC501 Pin ⑩① $\overline{\text{HSync}}$
PAL
VOLT/DIV: 1V
TIME/DIV: 20µS



IC501 Pin ⑩① $\overline{\text{HSync}}$
NTSC
VOLT/DIV: 1V
TIME/DIV: 20µS



IC DESCRIPTION

IC, CXA1992AR

Pin No.	Pin Name	I/O	Description
1	FEO	O	Output terminal for focus error amplifier. Internally connected to window comparator input for bias condition.
2	FEI	I	Input terminal for focus error.
3	FDFCT	I	Capacitor connection terminal for time constant used when there is defect.
4	FGD	I	This pin is connected to GND via capacitor when high frequency gain of the focus servo is attenuated.
5	FLB	I	This is a pin where the time constant is externally connected to raise the low frequency gain of the focus servo.
6	FE_O	O	Focus drive output.
7	FEM	I	Focus amplifier inverted input pin.
8	SRCH	I	This is a pin where the time constant is externally connected to generate the focus search waveform.
9	TGU	I	This is a pin where the selection time constant is externally connected to set the tracking servo the high frequency gain.
10	TG2	I	This is a pin where the selection time constant is externally connected to set the tracking high frequency gain.
11	FSET	I	Pin for setting peak of the phase compensator of the focus tracking.
12	TA_M	I	Tracking amplifier inverted input pin.
13	TA_O	O	Tracking drive output.
14	SL_P	I	Sled amplifier non-inverted input pin.
15	SL_M	I	Sled amplifier inverted input pin.
16	SL_O	O	Sled drive output.
17	ISET	I	The current which determines height of the focus search, track jump and sled kick is input with external resistance connected.
18	Vcc	I	Power supply.
19	LOCK	I	“L” setting starts sled disorder-prevention circuit. (Not pull-up resistance)
20	CLK	I	Clock input for serial data transfer from CPU. (No pull-up resistance)
21	XLT	I	Latch input from CPU. (No pull-up resistance)
22	DATA	I	Serial data input from CPU. (No pull-up resistance)
23	XRST	I	Reset system at “L” setting. (No pull-up resistance)
24	C_OUT	O	Signal output for track number counting.
25	SENS1	O	FZC, DFCT1, TZC, BALH, TGH, FOH, or ATSC is output depending on the command from CPU.
26	SENS2	O	DFCT2, MIRR, BALL, TGL or FOL is output depending on the command from CPU.
27	FOK	O	Output terminal for focus OK comparator.
28	CC2	I	Input pin where the DEFECT bottom hold output is capacitance coupled.
29	CC1	O	DEFECT bottom-hold output terminal. Internally connected to interruption comparator input.
30	CB	I	Connection terminal for DEFECT bottom-hold capacitor.
31	CP	I	Connection terminal for MIRR hold-capacitor. Anti-reverse input terminal for MIRR comparator.

Pin No.	Pin Name	I/O	Description
32	RF_I	I	Input terminal by capacity combination of RF summing amplifier.
33	RF_O	O	Output terminal of RF summing amplifier. Checkpoint of Eye pattern.
34	RF_M	I	Anti-reverse input terminal for RF summing amplifier. The gain of RF amplifier is decided by the connection resistance between RF_M and RFO terminals.
35	RFTC	I	This is a pin where the selection time constant is externally connected to control the RF level.
36	LD	O	APC amplifier output terminal.
37	PD	I	APC amplifier input terminal.
38, 39	PD1, PD2	I	RFI-V amplifier inverted input pin. These pins are connected to the A+C and B+C pins of the optical pickup, receiving by currents input.
40	FEBIAS	I/O	Bias adjustment pin of the focus error amplifier.
41, 42	F, E	I	F and EIV amplifier inverted input pins. These pins are connected to the F and E of the optical pickup, receiving by current input.
43	EI	—	Gain adjustment pin of the I-V amplifier E. (When not in use of BAL automatic adjustment)
44	VEE	—	GND connection pin.
45	TEO	O	Output terminal for tacking-error amplifier. Output E-F signal.
46	LPFI	I	BAL adjustment comparator input pin. (Input through LPF from TEO)
47	TEI	I	Input terminal for tracking error.
48	ATSC	I	Window-comparator input terminal for detecting ATSC.
49	TZC	I	Input terminal for tracking-zero cross comparator.
50	TDFCT	I	Capacitor connection pin for the time constant used when there is defect.
51	VC	O	Output terminal for DC voltage reduced to half of VCC+VEE.
52	FZC	I	Input terminal for focus-zero cross comparator.

IC, CXD2540Q

Pin No.	Pin Name	I/O	Description
1	FOK	I	Focus OK input. Used for SENS output and the servo auto sequencer.
2	FSW	O	Spindle motor output filter switching output.
3	MON	O	Spindle motor on/off control output.
4	MDP	O	Spindle motor servo control.
5	MDS	O	
6	LOCK	O	High, when sampled value of GFS at 460Hz is high. Low, when sampled value of GFS at 460Hz is low by 8 times successively.
7	NC		
8	VCOO	O	Analog EFM PLL oscillation circuit output.
9	VCOI	I	Analog EFM PLL oscillation circuit input. fLOCK=8.6436MHz.
10	TEST	I	TEST pin.
11	PDO	O	Analog EFM PLL charge pump output.
12	VSS		GND.
13	PWMI	I	Spindle motor external control input.
14	V16M	O	VCO2 oscillation output for the wide-band EFM PLL.
15	VCTL	I	VCO2 control voltage input for the wide-band EFM PLL.
16	VPCO	O	Wide-band EFM PLL charge pump output.
17	VCKI	I	VCO2 oscillation input for the wide-band EFM PLL.
18	FILO	O	Multiplier PLL (slave=digital PLL) filter output.
19	FILI	I	Multiplier PLL filter input.
20	PCO	O	Multiplier PLL charge pump output.
21	AVSS		Analog GND.
22	CLTV	I	Multiplier VCO1 control voltage input.
23	AVDD		Analog power supply (5V).
24	RF	I	EFM signal input.
25	BIAS	I	Constant current input of the asymmetry circuit.
26	ASYI	I	Asymmetry comparator voltage input.
27	ASYO	O	EFM full-swing output.
28	ASYE	I	Low: asymmetry circuit off; high: asymmetry circuit on.
29	NC		
30	PSSL	I	Audio data output mode switching input. Low: serial output; high: parallel output.
31	WDCK	O	D/A interface for 48-bit slot. Word clock f=2Fs.
32	LRCK	O	D/A interface for 48-bit slot. LR clock f=Fs.
33	VDD		Power supply (5V).
34	DA16	O	DA16 (MSB) output when PSSL=1. 48-bit slot serial data (two's complement, MSB first) when PSSL=0.
35	DA15	O	DA15 output when PSSL=1. 48-bit slot bit clock when PSSL=0.
36	DA14	O	DA14 output when PSSL=1. 64-bit slot serial data (two's complement, LSB first) when PSSL=0.
37	DA13	O	DA13 output when PSSL=1. 64-bit slot bit clock when PSSL=0.
38	DA12	O	DA12 output when PSSL=1. 64-bit slot LR clock when PSSL=0.

Pin No.	Pin Name	I/O	Description
39	DA11	O	DA11 output when PSSL=1. GTOP output when PSSL=0.
40	DA10	O	DA10 output when PSSL=1. XUGF output when PSSL=0.
41	DA09	O	DA09 output when PSSL=1. XPLCK output when PSSL=0.
42	DA08	O	DA08 output when PSSL=1. GFS output when PSSL=0.
43	DA07	O	DA07 output when PSSL=1. RFCK output when PSSL=0.
44	DA06	O	DA06 output when PSSL=1. C2PO output when PSSL=0.
45	DA05	O	DA05 output when PSSL=1. XRAOF output when PSSL=0.
46	DA04	O	DA04 output when PSSL=1. MNT3 output when PSSL=0.
47	DA03	O	DA03 output when PSSL=1. MNT2 output when PSSL=0.
48	DA02	O	DA02 output when PSSL=1. MNT1 output when PSSL=0.
49	DA01	O	DA01 output when PSSL=1. MNT0 output when PSSL=0.
50	APTR	O	Aperture compensation control output. This pin outputs a high signal when the right channel is used.
51	APTL	O	Aperture compensation control output. This pin outputs a high signal when the left channel is used.
52	VSS		GND.
53	XTAI	I	Crystal oscillation circuit input.
54	XTAO	O	Crystal oscillation circuit output.
55	XTSL	I	Crystal selector input.
56	FSTT	O	2/3 frequency divider output for Pins 53 and 54.
57	FSOF	O	1/4 frequency divider output for Pins 53 and 54.
58	C16M	O	16.9344MHz output. (V16M output in CLV-W and CAV-W modes)
59	MD2	I	Digital-out on/off control. High: on; low: off
60	DOUT	O	Digital-out output.
61	EMPH	O	Outputs a high signal when the playback disc has emphasis, and a low signal when there is no emphasis.
62	WFCK	I	WFCK (write frame clock) output.
63	SCOR	O	Outputs a high signal when either subcode sync S0 or S1 is detected.
64	SBSO	O	Sub P to W serial output.
65	EXCK	I	SBSO readout clock input.
66	SQSO	O	Sub Q 80-bit and PCM peak, level metter and internal status outputs.
67	SQCK	I	SQSO readout clock input.
68	MUTE	I	High: mute; low: release
69	SENS	—	SENS output to CPU.
70	XRST	I	System reset. Reset when low.
71	DATA	O	Serial data input from CPU.
72	XLAT	O	Latch input from CPU. Serial data is latched at the falling edge.
73	VDD		Power supply (5V).
74	CLOK	O	Serial data transfer clock input from CPU.
75	SEIN	I	SENS input from SSP.
76	CNIN	I	Track jump count signal input.

Pin No.	Pin Name	I/O	Description
77	DATO	O	Serial data output to SSP.
78	XLTO	O	Serial data latch output to SSP. Latched at the falling edge.
79	CLKO	O	Serial data transfer clock output to SSP.
80	MIRR	I	Mirror signal input. Used when the number of tracks is 128 or more for the 2N-track jump and M track move of the auto sequencer.

Notes)

- The 64-bit slot is an LSB first, two's complement output, and the 48-bit slot is an MSB first, two's complement output.
- GTOP is used to monitor the frame sync protection status. (High: sync protection window open.)
- XUGF is the negative pulse for the frame sync obtained from the EFM signal. It is the signal before sync protection.
- XPLCK is the inverse of the EFM PLL clock. The PLL is designed so that the falling edge and the EFM signal transition point coincide.
- GFS goes high when the frame sync and the insertion protection timing match.
- RFCK is derived from the crystal accuracy, and has a cycle of 136μ.
- C2PO represents the data error status.
- XRAOF is generated when the 32K RAM exceeds the ±28F jitter margin.

IC, CL680

Pin No.	Pin Name	I/O	Description
1	NC	—	No connection.
2	VSS	—	GND.
3	CD BCK	I	Bit clock input from CD DSP.
4	CD DATA	I	Data input from CD DSP.
5	CD LRCK	I	LRCK input from CD DSP.
6	CD C2PO	I	C2 pointer input from CD DSP.
7-9	NC	—	No connection.
10-15	MD0-MD5	I/O	DRAM/ROM interface. (DATA)
16	VSS	—	Ground.
17	MD6	I/O	DRAM/ROM interface. (DATA)
18	VDD3	—	Power supply 3.3V.
19	MD7	I/O	DRAM/ROM interface. (DATA)
20	VSS	—	Ground.
21	MD8	I/O	DRAM/ROM interface. (DATA)
22	VDD3	—	Power supply 3.3V.
23-29	MD9-MD15	I/O	DRAM/ROM interface. (DATA)
30-36	NC	—	No connection.
37	$\overline{\text{MCE}}$	—	ROM chip enable.
38	$\overline{\text{MWE}}$	O	DRAM write enable.
39	VSS	—	Ground.
40	$\overline{\text{CAS}}$	O	DRAM/ROM interface.
41	VDD3	—	Power supply 3.3V.
42	$\overline{\text{RASO}}$	O	DRAM/ROM interface.
43	$\overline{\text{RASI}}$	O	
44-46	MA10-MA8	O	DRAM/ROM interface. (Address)
47	VSS	—	Ground.
48	MA7	O	DRAM/ROM interface. (Address)
49	VDD3	—	Power supply 3.3V.
50-52	MA6-MA4	O	DRAM/ROM interface. (Address)
53	VSS	—	Ground.
54	MA3	O	DRAM/ROM interface. (Address)
55	VDD3	—	Power supply 3.3V.
56-58	MA2-MA0	O	DRAM/ROM interface. (Address)
59	PGIO7	I/O	Programmable I/O.
60	$\overline{\text{RESET}}$	I	Reset input.
61	VDD MAX IN	—	Power supply - VDDMAX. (5.0V)
62-64	NC	—	No connection.
65	AGND DAC	—	Analog ground.
66	A DAC	—	Analog power supply (DAC) : 3.3V.
67	COMP OUT	O	Composite out.
68	AGND DAC	—	Analog ground.

Pin No.	Pin Name	I/O	Description
69	Y OUT	O	Video signal “Y” OUT.
70	AVDD DAC	—	Analog power supply (DAC) 3.3V.
71	AGND DAC	—	Analog ground.
72	R REF	I	Reference resistor input.
73	V REF	I	Voltage reference input.
74	AVDD DAC	—	Analog power supply (DAC) : 3.3V.
75	C OUT	O	Video signal “C” out.
76	AGND DAC	—	Analog ground.
77-79	CLK SEL0-2	I	Clock selection input.
80	VSS	—	Ground.
81	CLK SEL3	I	Clock selection input.
82	VDD3	—	Power supply 3.3V.
83, 84	CLK SEL4, 5	I	Clock selection input.
85	AGND PLL	—	Analog ground.
86	DA XCK	I	DA XCK (16.933MHz) input.
87	AVDD PLL	—	Analog power supply 3.3V.
88	DA EMP	O	DAC-emphasis output.
89, 90	PGIO5, O6	I/O	Programmable I/O.
91	PGIO0	I/O	
92	PGIO8	I/O	
93	$\overline{\text{VSYNC}}/\overline{\text{CSYNC}}$	O	$\overline{\text{VSYNC}}/\overline{\text{CSYNC}}$ output.
94	AVDD PLL	—	Analog power supply (PLL) 3.3V.
95	VID_DAC_CK	O	Video DAC clock.
96	PROC_CK	O	Processor clock.
97	AUD_XCK	O	Audio XCK.
98	AGND PLL	—	Analog ground.
99	VSS	—	Ground.
100	NC	—	No connection.
101	$\overline{\text{HSYNC}}$	O	$\overline{\text{HSYNC}}$ output.
102	VDD3	—	Power supply 3.3V.
103	VCK OUT	O	VCK out.
104	VSS	—	Ground.
105	GCK	I	Global clock signal input. (42.3MHz)
106	VCK	I	Video clock signal input. (27.0MHz)
107	GCK OUT	O	Global clock signal output. (27.0MHz)
108	DA LRCK	O	DAC-LRCK output.
109	VDD MAX OUT	—	Power supply (VDD MAX) : 5.0V.
110	DA DATA	O	DAC-PCM data output.
111	DA BCK	O	DAC-BIT clock output.
112	HD OUT	O	Micon interface. (Data out)
113	HRDY	O	Micon interface. (Host ready)

Pin No.	Pin Name	I/O	Description
114	$\overline{\text{HINT}}$	O	Micon interface. (Host interrupt)
115	CDG SCK	I	CD-G serial clock input.
116	VSS	—	Ground.
117	HCK	I	Micon interface. (Host clock)
118	VDD3	—	Power supply 3.3V.
119	HD IN	I	Micon interface. (Host data in)
120	VDD3	—	Power supply 3.3V.
121	HSEL	I	Micon interface. (Host select in)
122	CDG DATA	I	CD-G data input.
123	CDG VFSY	I	CD-G VFSY input.
124	CDG SOSI	I	CD-G SOSI input.
125	DSP-XCK	O	DSP-XCK output.
126-128	NC	—	No connection.

IC, LC74781M

Pin No.	Pin Name	I/O	Description
1	VSS1	—	GND connection terminal. (Digital ground terminal).
2	Xtal IN	I	External X'tal and capacitor for internal sync generator, or the external clock are connected to this terminal. (2fsc or 4fsc).
3	Xtal OUT	O	
4	CTRL1	I	Either the external clock input mode or the X'tal generator mode is selected by this selector terminal. L: X'tal generator mode, H: External clock input.
5	BLANK	O	Blank signal (character and the green ORed signal) is output from this terminal. (MODE 0: composite sync signal is output at H.) When reset ($\overline{RST}$ terminal = L), the X'tal clock signal is output. (It is not output when reset by the reset command).
6	OSC IN	I	External coil and capacitor for the character output dot clock generator are connected to this terminal.
7	OSC OUT	O	
8	CHARA	O	The character signal is output from this terminal. (MOD 0: when H, the external sync signal identification signal is output from this terminal. This output signal tells whether the external sync signal is present or not. When external sync signal is present, H is output.) When reset ($\overline{RST}$ terminal = L), the dot clock signal (LC oscillator) is output. (It is not output when reset by the reset command).
9	$\overline{CS}$	I	Enable signal for the serial data input is input to this terminal. The serial data input is enabled at L. Pull-up resistor is built-in. (Hysteresis input).
10	SCLK	I	Clock of the serial data input is input to this terminal. Pull-up resistor is built-in. (Hysteresis input).
11	SIN	I	Serial data input terminal. Pull-up resistor is built-in. (Hysteresis input).
12	VDD2	—	Power supply for the composite video signal level adjustment. (Analog power supply).
13	CV OUT	O	Composite video signal output terminal.
14	NC	—	Connected to GND or not connected.
15	CV IN	I	Composite video signal input terminal.
16	VDD1	—	Power supply (+5V digital power supply).
17	SYN IN	I	Video signal for the internal sync separator circuit is input to this terminal. (When the internal sync separator circuit is not used, the horizontal sync signal or composite sync signal is input to this terminal).
18	SEP C	—	Internal sync separator circuit bias voltage monitoring terminal.
19	SEP OUT	O	The composite sync output signal of the internal sync separator circuit is output from this terminal. (H: MOD 1. H: during internal sync mode. L: during external sync mode.) (When internal sync separator circuit is not used, the SYN IN input signal is output from this terminal).
20	SEP IN	I	The output signal of the SEP OUT terminal is integrated so that the vertical sync signal is input to this terminal. An integrator circuit must be connected between the SEP OUT terminal and this terminal. When this terminal is not used, it must be connected to VDD1.
21	CTRL2	I	When selecting any of the NTSC or PAL or PAL-M or PAL-N system, the pin setting has priority. When L, the NTSC system is selected after resetting. Selection of either NTSC or PAL or PAL-M or PAL-N system by the command becomes effective. H: PAL-M system.

Pin No.	Pin Name	I/O	Description
22	CTRL3	I	Controls whether or not to input the $\overline{\text{VSYNC}}$ signal to the SEPIN input. L: to input the $\overline{\text{VSYNC}}$ signal. H: not to input the $\overline{\text{VSYNC}}$ signal.
23	$\overline{\text{RST}}$	I	System reset input terminal. Pull-up resistor is built-in. (Hysteresis input).
24	VDD1	—	Power supply. (+5V digital power supply).

IC, µPD78016FGC

Pin No.	Pin Name	I/O	Description
1	RBPLS	O	RADIAL BALANCE PLUS.
2	AMUTE	O	AUDIO ANALOG MUTE (H=MUTE ON).
3	GFS	I	GFS.
4	XVCDMD	I	AUDIO/VIDEO CD MODE (L=VCD=SPINDLE GAIN UP).
5	MD2	O	DOUT MUTE CONT.
6	EMPH	I	EMPHASIS.
7	SQSO	I	SQDATA FROM CD.
8	SQCK	O	SQCLK TO CD.
9	VSS	—	GND.
10	SWNT	I	SW TV OUT MODE (L=NTSC).
11	SWAUTO	I	SW TV OUT MODE (L=NTSC/PAL AUTO).
12	SWPAL	I	SW TV OUT MODE (L=PAL).
13	EMERG	I	POWER EMERGENCY STOP (L*3sec=STOP).
14	NC	—	Nou used.
15	LPCSEL	I	“LPC ON/OFF (H=ON, NORMAL)”.
16	NC	—	Nou used.
17	LOCK	O	GFS (FRAME SYNC) LOCK (NO USE=H).
18	DMUTE	O	DIGITAL DATA OUT MUTE.
19	SENS	I	DSP SENS1 FROM CD.
20	XCDRST	O	CD RESET.
21	DATA	O	DATA TO CD.
22	XLAT	O	XLT TO CD.
23	CLOK	O	CLK TO CD.
24	VSS	—	GND.
25	FOK	I	FOCUS OK.
26	SENS2	I	SSP SENS2 FROM CD.
27	XBUSY	I/O	READY/BUSY I/O TO HOST OD.
28	NC	—	Nou used.
29	NC	—	
30	NC	—	
31	TST0	I/O	CHECK LAND.
32	TST1	I/O	
33	TST2	I/O	
34	TST3	I/O	
35	RESET	I	RESET.
36	HRDY	I	HRDY FROM CL680.
37	XHINT	I	HINT FROM CL680.
38	NC	—	Nou used.
39	SCOR	I	SCOR FROM CD.
40	VDD	—	5.0VDD.
41	XO	O	8.0MHz CERALOCK.

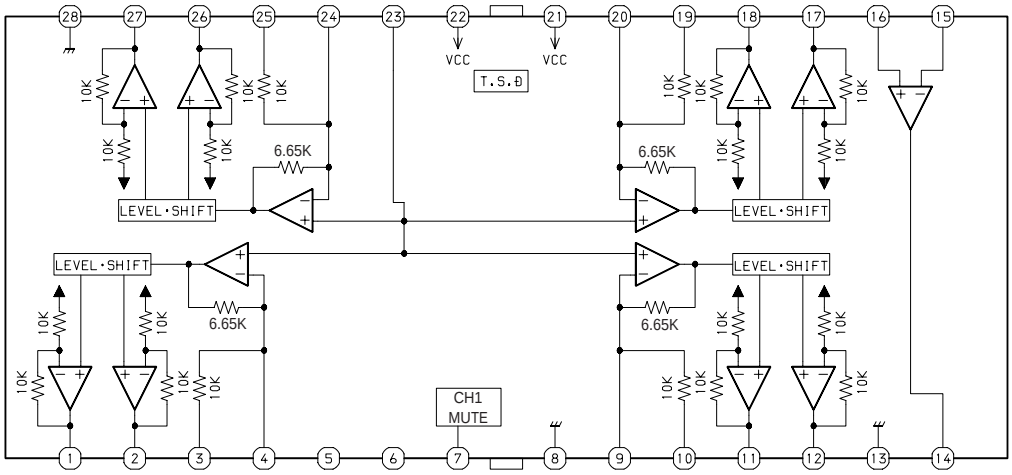
Pin No.	Pin Name	I/O	Description
42	XI	I	8.0MHz CERALOCK.
43	VSS	—	GND.
44	XT2	—	Nou used.
45	XT1	I	5.0VDD.
46	AVSS	—	GND.
47	XMPGRST	O	MPEG BLOCK IC RESET.
48	HSEL	O	ADDRESS/DATA SEL TO CL680.
49	INLSW	I	INSIDE LIMIT SW.
50	NC	—	Nou used.
51	OSDXCS	O	OSD CHIP SELECT.
52	ABSEL	I	CXA1992A/B SELECT (L=CXA1992A).
53	CLVSEL	I	CLV MODE SELECT (H=CLV-N).
54	AADSEL	I	AUTO ADJUST SELECT (H=AUTO ON).
55	AVDD	—	5.0VDD.
56	AVREF	—	
57	HDOUT	I	HD-OUT FROM CL680.
58	HDIN	O	HD-IN TO CL680.
59	HCK	O	HCK TO CL680.
60	OSDDATA	O	OSD DATA.
61	OSDCLK	O	OSD CLOCK.
62	COMMAND	I	COMMAND FROM HOST.
63	STATUS	O	STATUS TO HOST.
64	SCK	I	SCK FROM HOST.

IC, SM5878M

Pin No.	Pin Name	I/O	Description
1	MUTE	I	MODE = H: Soft mute ON/OFF terminal. (Mute at H). MODE = L: Attenuator level DOWN/UP terminal. (DOWN at H).
2	DEEM	I	De-emphasis ON/OFF terminal. (De-emphasis ON at H).
3	CKO	O	Oscillator clock output. (16.9344 MHz).
4	DVSS	—	Digital VSS terminal.
5	BCKI	I	Bit clock input terminal.
6	DI	I	Serial data input terminal.
7	DVDD	—	Digital VDD terminal.
8	LRCI	I	Sample rate clock (fs) input terminal. (H = L ch/L = R ch).
9	TSTN	I	Test input. (“H” or open during normal operation)
10	TO1	O	Test output 1. (Normally low level output).
11	AVDDL	—	Analog VDD terminal. (For L ch).
12	LO	O	Left channel analog output terminal.
13	AVSS	—	Analog VSS terminal.
14	RO	O	Right channel analog output terminal.
15	AVDDR	—	Analog VDD terminal. (For R ch).
16	MUTEO	O	Infinity zero detection output.
17	XVDD	—	X’tal system VDD terminal.
18	XTI	I	X’tal oscillator terminal. (Or external clock input terminal of 16.9344 MHz).
19	XTO	O	X’tal oscillator terminal.
20	XVSS	—	X’tal system VSS terminal.
21	DS	I	Double-speed/normal playback selection. (Double-speed at H).
22	RSTN	I	Reset terminal. (Reset at L).
23	MODE	I	Soft mute/Attenuator mode selection. (Soft mute at H).
24	ATCK	I	Attenuator level setup clock (Ignored when MODE = H).

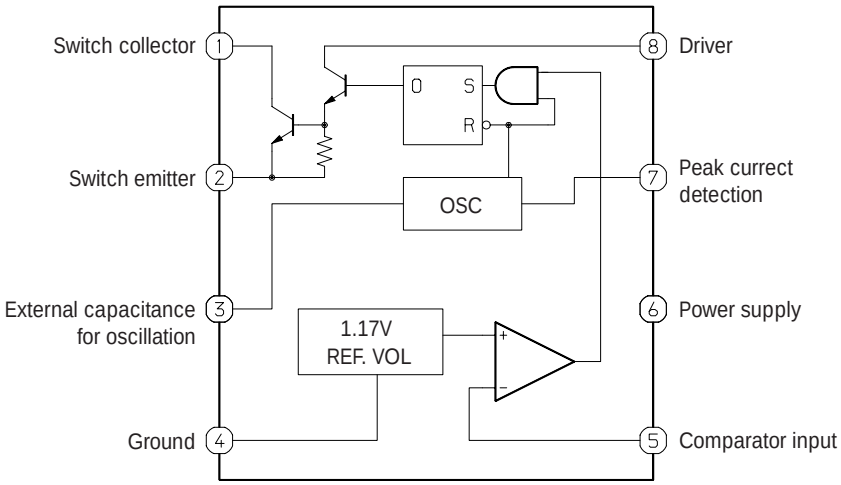
IC BLOCK DIAGRAM

IC, BA5915FP

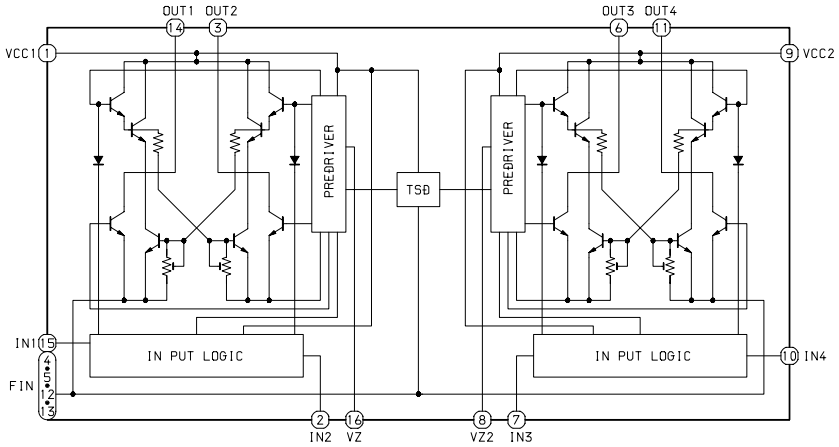


T.S.D: Thermal shut-down
Resistors are in units of Ω.

IC, M5291FP



IC, LB1644



TRUH TABLE

IN1	IN2	OUT1	OUT2	IN3	IN4	OUT3	OUT4
0	0	L	L	0	0	L	L
1	0	H	L	1	0	H	L
0	1	L	H	0	1	L	H
1	1	L	L	1	1	L	L

INPUT			OUTPUT				MODE	
IN1	IN2.3	IN4	OUT1	OUT2	OUT3	OUT4	M1	M2
0	0	0	L	L	L	L	BRAKE	BRAKE
1	0	0	H	L	L	L	FF/REW	BRAKE
0	1	1	L	H	L	L	REW/FF	BRAKE
1	1	0	L	L	H	L	BRAKE	FF/REW
0	0	1	L	L	L	H	BRAKE	REW/FF
1	1	1	L	L	L	L	BRAKE	BRAKE

TEST MODE

1. How to Activate CD Test Mode
   Insert the AC plug while pressing the function CD button.
   All FL display tubes will light up, and the test mode will be activated.

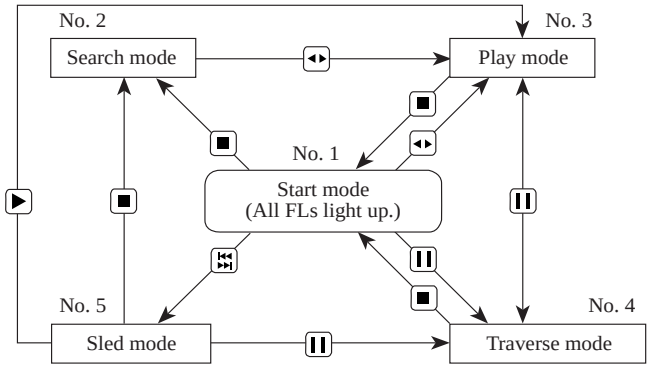
2. How to Cancel CD Test Mode
   Either one of the following operations will cancel the CD test mode.
   - Press the function button. (except CD function button)
   - Press the power switch button.
   - Disconnect the AC plug

3. CD Test Mode Functions
   When test mode is activated, the following mode functions from No.1 to No.5 can be used by pressing the operation keys.

Mode/No.	Operation	FL display	Operation	Contents
Start mode No.1	Activation	TEST□□ □□ □□ Flashes repeatdly	• Test mode is activated. • CD block power is ON.	• Test mode
Search mode No.2	■ key		• Continual focus search (The pickup lens repeats the full-swing up-down motion.) * Avoid continual searches that last for more than 10 minutes. * NOTE 1	FOCUS SERVO • Check focus search waveform • Check focus error waveform (FOK/FZC are not monitored in the search mode)
Play mode No.3	◀▶key		• Normal playback • Focus search is continued if TOC cannot be read. * NOTE 1	FOCUS SERVO/TRACKING SERVO CLV SERVO/SLED SERVO Check FOK/FZC
Traverse mode No.4	⏸ key		• During normal disc playback Press once; tracking servo OFF Press twice; tracking servo ON * NOTE 2	TRACKING SERVO ON/OFF Tracking balance (traverse) check
Sled mode No.5	⏮key ⏭	All lamps light	• Pickup moves to the outermost track • Pickup moves to the innermost track * NOTE 3 (During playback, machine operates normally.)	SLED SERVO Check SLED mechanism operation

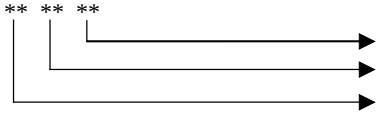
* NOTE 1: There are cases when the tracking servo cannot be locked owing to the protection circuit being operated when heat builds up in the driver IC if the focus search is operated continually for more than 10 minutes. In these cases the power supply should be switched off for 10 minutes until heat has been reduced and then re-started.
* NOTE 2: Do not press the ⏮ or ⏭ keys when the machine is in the ⏸ status is active. If they are pressed, playback will not be possible after the ⏸ status has been canceled. If the ⏮ or ⏭ keys are pressed in the ⏸ status, press the ■ key and return to the start mode (No.1).
* NOTE 3: When pressing the ⏮ or ⏭ keys, take care to avoid damage to the gears. Because the sled motor is activated when the ⏮ or ⏭ keys are pressed, even when the pick-up is at the outermost or innermost track.

4. Operation Outline
   The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



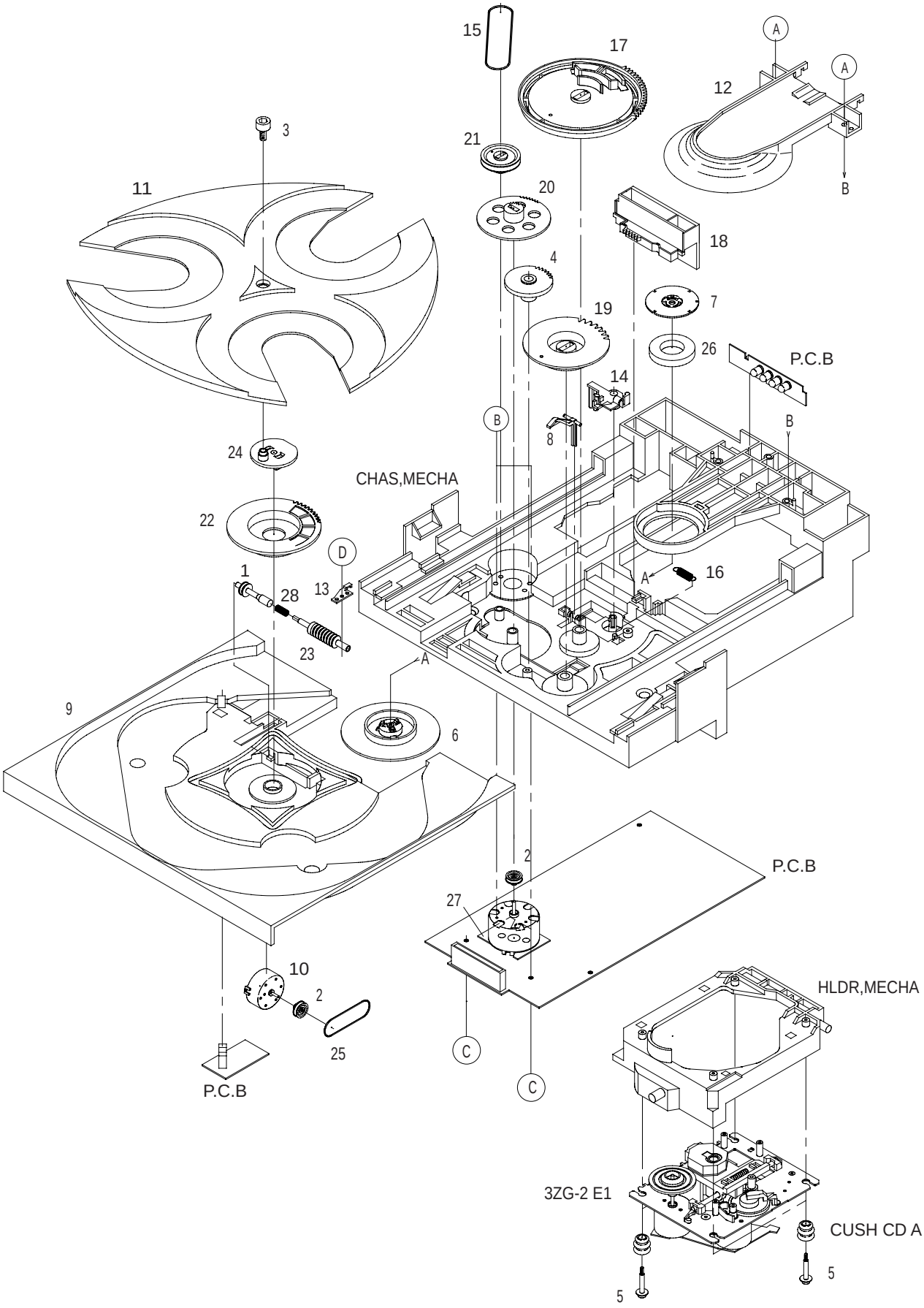
   If the DISC DIRECT PLAY button is pressed, the machine performs the same operation as the PLAY button is pressed as shown. If the tray is opened by pressing OPEN/CLOSE button during Play mode or Traverse mode, the machine returns to the Start mode.

5. How to check the Automatic Adjustment Values
   The automatic adjustment values can be checked by pressing the square (■) button.
   FL display (displayed in hexadecimal values)



Note) The reference value is “20 08 08”.

MECHANICAL EXPLODED VIEW 1/1

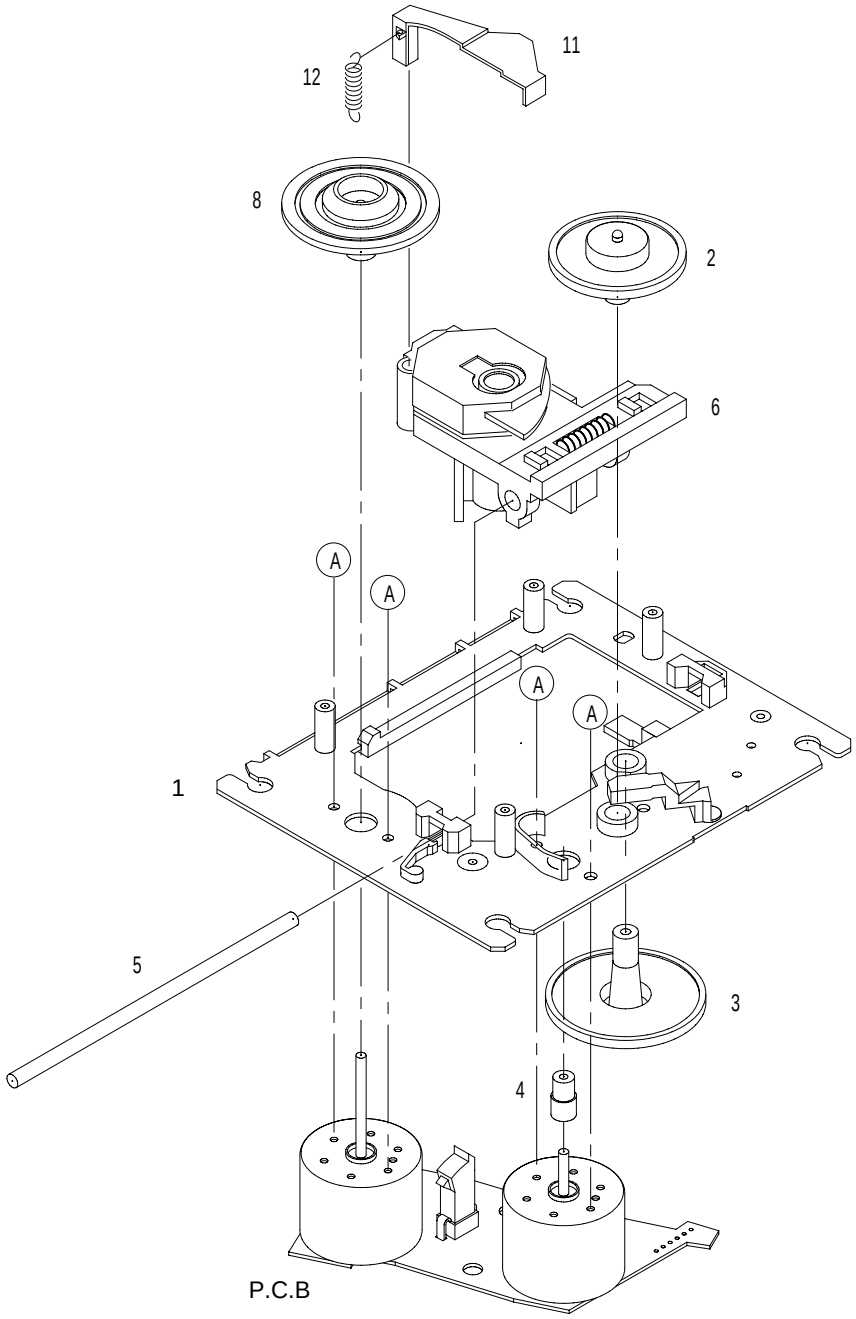


MECHANICAL PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	84-ZG1-239-210		PULLY,WORM N
2	84-ZG1-267-010		PULLEY,LOAD MO 8
3	81-ZG1-239-010		S-SCREW,TT
4	81-ZG1-291-110		GEAR,TRAY RELAY NO3
5	81-ZG1-271-010		S-SCREW MECH REAR
6	81-ZG1-277-310		HLDR,MAGNET N
7	81-ZG1-255-110		PLATE,MAGNET MK2
8	83-ZG3-213-010		LVR,SW
9	84-ZG1-003-310		TRAY,NO2-B
10	87-045-364-010		MOTOR(BCH3B14)
11	84-ZG1-005-210		TURNTABLE,NO1(*)
12	84-ZG1-011-010		REFLECTOR,CD
13	84-ZG1-259-010		SPR-P,WORM
14	84-ZG1-208-210		LEVER,CAM
15	84-ZG1-209-010		BELT,SQ1.8-117.7
16	84-ZG1-211-010		SPR-E CAM S
17	84-ZG1-215-410		GEAR,MAIN CAM BLU
18	84-ZG1-216-310		SLIDE,MECHA CAM YEL
19	84-ZG1-205-110		GEAR,TRAY
20	84-ZG1-206-110		GEAR,RELAY
21	84-ZG1-207-010		PULLEY,RELAY
22	84-ZG1-221-010		GEAR,MAIN TT
23	84-ZG1-238-010		GEAR,WORM N
24	84-ZG1-224-010		LEVER,TT
25	84-ZG1-225-010		BELT,SQ1.0-63.3
26	83-ZG3-602-010		RING,MAG
27	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
28	84-ZG1-248-010		SPR-C,WORM
A	87-067-703-010		TAPPING SCREW, BVT2+3-10
B	87-251-070-410		U+2.6-3
C	87-342-036-210		UT2+2-8
D	87-067-981-010		BVT2+3-6 BLK

CD MECHANISM EXPLODED VIEW 1/1 (3ZG-2 E1)



CD MECHANISM PARTS LIST 1/1 (3ZG-2 E1)

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG2-243-110		CHAS ASSY,SHT
2	83-ZG2-235-010		GEAR,A3
3	83-ZG2-205-210		GEAR,B
4	83-ZG2-236-010		GEAR MOTOR 3
5	83-ZG2-240-010		SHAFT,SLIDE 3
6	87-A90-836-010		PICKUP,KSS-213F
8	83-ZG2-233-010		TURN TABLE,A5
11	83-ZG2-245-110		LEVER,SHUTTER
12	83-ZG2-250-010		SPR-E,SHT 2
A	87-261-032-210		SCREW V+2-3

CX-NAK572
CX-NK270
CX-NK290
CX-NK370
CX-NK570
CX-NK765
CX-NK770
CX-NK970
DX-SNKH100

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
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G一　一	
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